

# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXXI.

NEW YORK, SATURDAY, JULY 3, 1897.

No. 1.

## ORIGINAL ARTICLES.

### THE TREATMENT OF PULMONARY TUBERCULOSIS.<sup>1</sup>

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In the November number of the *Occidental Medical Times* of last year I described a method of treatment of pulmonary tuberculosis which was based upon some original conceptions of the mode of generation of antitoxins in the animal body. Further research and clinical experience has enabled me to confirm the statements made at that time, and also those contained in an additional note published one month later. My clinical observations, and those of my colleagues who have investigated the remedy, have established the efficacy of oxytuberculin beyond a doubt. Culture experiments, as will be seen, show how the agent acts and enables us to measure the potency of each preparation of the oxytuberculin in a manner that has not yet been possible with any of the antitoxic serums.

Before the year 1890 the attitude of the medical profession toward pulmonary tuberculosis was that of almost absolute helplessness. We had learned to diagnosticate the disease in its early stages by the microscopic examination of the sputum through the presence of the bacillus tuberculosis, but we felt that when we had established the presence of the dread disease all that we could do was to send the hapless patient to a congenial climate in the hope that fresh air and exercise might prove of benefit. As far as active therapeutic intervention was concerned, however, we knew that we could do nothing. Then came the glad tidings that Koch had found the long-sought-for specific—that his tuberculin was the certain cure for tuberculosis wherever it might be found. We shall probably never again witness such enthusiasm in medical circles as that which was aroused by Koch's demonstration. We had learned to look upon his statements as demonstrated facts, for he had never until then enunciated a doctrine which had not been found to be correct. We even felt that the secrecy of the remedy was to be forgiven in him—although in another such a procedure would have been considered quackish. Truly it seemed marve-

lous that an infinitesimal quantity of an organic liquid injected under the skin of a tuberculous individual should cause a violent febrile reaction with congestion of the tuberculous mass, and no effect on other tissues. Everyone was eager to try the new remedy even if he did not know what it was, and happy was he if he were one of the favored few who could obtain it at any price. But the reaction came only too soon. Virchow showed at the *post-mortem* table what the influence of the tuberculin really was. In a large number of cases death was hastened by its use and dissemination of tubercle was induced by it to an extent that the great pathologist had not seen before. From that time on the credit of tuberculin began to wane, and soon it fell into disrepute as a remedy for tuberculosis with the vast majority of physicians. It still holds its place for diagnostic purposes, for the febrile reaction following its injection is a certain sign that tuberculosis is somewhere present in the body. We now know what tuberculin is and how it is prepared. Upon the surface of veal bouillon containing glycerin and peptone a pure culture of the bacillus tuberculosis is floated and cultivated at 38° Centigrade. After six to eight weeks a pellicle will have covered the surface and sunk to the bottom of the vessel. The fluid is then sterilized by heat, filtered through a Pasteur filter and evaporated to one-tenth its volume. This is the crude tuberculin such as was formerly used. Now this crude liquid is precipitated with alcohol, washed, and dissolved in water.

Feeling that there was an element of truth in the statements of Koch that tuberculin cures consumption, and that the ill effects resulting from its use must be due to some extraneous foreign elements, several investigators have attempted to purify it and have used what they supposed to be a purified tuberculin under various names. The most prominent of these preparations is that of Klebs, which he terms "antiphthisin." Unfortunately the claims made by Klebs have not been confirmed by experience. Trudeau has clearly proved that antiphthisin is merely a very dilute tuberculin. We will see during the course of these remarks that Trudeau was quite correct when he stated that Klebs erred in affirming that tuberculin inhibited the growth of the tuberculosis bacillus, for he showed that it is the acid that develops in the culture-fluid which acts as a preventive of further growth. I can confirm Trudeau's state-

<sup>1</sup> Read before the California State Medical Society.

ments, for in equal parts of tuberculin and veal bouillon which has been made alkaline, the tubercle bacillus grows as freely as in the plain veal bouillon. Clinical observations have been as adverse to the claims of Klebs as have been laboratory experiments.

In 1890 Behring enunciated the doctrine of the antitoxic substances which develop in the animal organism from the bacterial toxins, and this led to the introduction of the antitoxin of diphtheria into general medical practice. In spite of occasional adverse criticism and an occasional death due directly to the remedy, it has proved its value in the treatment of diphtheria beyond a doubt, and thousands of lives are yearly saved that would otherwise undoubtedly have been lost.

Stimulated by these excellent results, numerous investigators have attacked tuberculosis in a similar manner and have probably met with some success. This is true of Paquin in our country and Maragliano in Italy. Their method of procedure is to inject gradually increasing quantities of tuberculin hypodermically into a horse until the animal becomes immune to such large injections. The blood is then drawn from the jugular vein into a sterile flask, allowed to coagulate in a cool place, and the sterile serum is drawn off for use as the antitoxin. It will require a long observation of results by many clinicians before we will be able to arrive at a knowledge of just how much may be accomplished by this serum. But even if it should be finally proved that an anti-tuberculin develops in animals so treated, its use as a curative agent in man is attended by several obstacles and dangers. In the first place, the quantity of tuberculin used, and hence the quantity of antituberculin developed, is so infinitesimal that when dissolved in the blood and plasma of the animal it is present in such minute proportions that the numeral would be far removed from the decimal point in its representation in figures. In the second place, the anti-tuberculin elaborated in the blood must be administered dissolved in the serum of the animal. We know from several deaths which have immediately followed the administration of the diphtheria antitoxin that this is by no means an indifferent substance which may be administered in unlimited quantities. We know that in the animal body the antitoxin develops in some manner from the toxin; if we were able to discover the process it is clear that we might be able in our laboratories to imitate the method and so produce the sought-for remedy in unlimited quantities and free from deleterious admixture. Until now no satisfactory theory has been established, and no indication has been given of the lines upon which to proceed.

With regard to tuberculosis, however, it seems to

me that the course to pursue has long been before the medical profession even though we have been unable to read what Nature has written for us in her hieroglyphics. The theory which lies at the foundation of the therapeutic measures about to be described is even more important than the results themselves, for if it should be found to be correct, it will be an addition to our biologic knowledge of the greatest scientific importance. This theory was thought out early in October, 1895, and the various modes by which it might practically be applied were clear before a single step was taken. In other words, the theory was not evolved from the therapeutic results, but the method of treatment was a consequence of the biologic proposition. The therapeutic success may therefore be looked upon as a verified prediction, and hence has far greater evidential value than it otherwise could have. The treatment of patients by the new method was very cautiously begun on October 22, 1895, and as the results warranted, the doses were gradually increased until after a few months efficient quantities were administered. I am pleased to be able to say that to my knowledge no patient has been injured by the use of the remedy.

In 1864 Spencer Wells performed laparotomy, in consequence of an erroneous diagnosis, upon a patient suffering from tuberculous peritonitis. Contrary to all expectations, the patient recovered. Numerous cases have since been reported in which the same favorable results occurred; indeed, the peritoneum which was observed at the operation to be studded with tubercles has been found years after, at a second operation, to be smooth and free from all tuberculous deposits. Distant tuberculosis has also been observed to disappear after laparotomy upon a tuberculous peritoneum. It appears most probable that in these cases the entrance of air into the peritoneal cavity must have been the important factor; that an oxidation of the tuberculin present in the effusion was thus brought about and that it was this oxytuberculin which effected the cure both of the local and of the general tuberculosis. It certainly seems a very probable hypothesis that it is by oxidation that the toxin is changed into antitoxin in the animal body, for there is no process of the economy so universal as oxidation. The first and most evident result of the introduction of a toxin is fever, with increased oxidation as if Nature was striving with all her power to change by this process the poisonous substance into its antidote.

Acting upon this hypothesis the problem of finding a method of oxidizing the toxin without completely destroying it presented itself, and various methods of accomplishing this result were investigated. I will not weary you with a description of the different forms

of experiment which were attempted, nor of the steps which were taken until the method was finally perfected, but shall describe in as detailed a manner as I can the mode in which oxytuberculin is now manufactured. I found very soon in the course of my experiments that the peroxid of hydrogen was the substance for which I was seeking, and that it is a powerful oxidizer but not so destructive as is generally supposed. When I added it to tuberculin at a low temperature and injected the latter into a tuberculous patient or animal even after the mixture had stood for some time it produced the same reaction as if pure tuberculin had been used. I found that in order to avoid such reaction it was necessary to heat the mixture for at least ninety-six hours. I have lately found it wise to lengthen the period of heating even more, and now I sterilize it for 120 hours, obtaining better results than formerly. I formerly used the tuberculin prepared by Koch in Berlin, but have been able to obtain still better results with one of my own growth, made by the development of a highly virulent bacillus of tuberculosis upon veal bouillon containing four per cent. of glycerin, one per cent. of peptone, and one-half per cent. of chlorid of sodium, to every liter of which, when neutralized, 3 c.c. of a normal solution of carbonate of sodium is added. In this culture-fluid the germ has developed with gradually increasing rapidity so that whereas ordinarily it takes six weeks for the culture-fluid to be completely covered by the growth, this now occurs in my laboratory in less than three weeks. Injected into guinea-pigs it kills many of them in less than three weeks, the organs being overwhelmed with tuberculous nodules.

After the germ has fully grown so that the tuberculous scum which floats on the surface begins to sink, the flask is sterilized by heat for two hours, and the contents are filtered. This is the tuberculin I use. A measured quantity is put into a stone jug and one-tenth the quantity of a ten-volume solution of peroxid of hydrogen is added, and the jug is stoppered with cotton and put into a sterilizer at 100° C. Every twelve hours the same quantity of peroxid of hydrogen is added until the process has been repeated the tenth time, so that, in all, the quantity of solution of peroxid of hydrogen added shall equal the quantity of tuberculin used. This is then heated to 100° C. for twelve hours longer, and at the end of that time (120 hours in all) it is found still to contain free peroxid of hydrogen, is highly acid, and is decidedly darker than was the original tuberculin. It is made alkaline with caustic soda and reheated to drive off the excess of peroxid of hydrogen. Five per cent. of boric acid is added to keep it from decomposing. It is filtered into sterile vessels and is ready for use.

It now does not contain a trace of the peroxid of hydrogen, which has all been changed to water.

Theoretical objections have been made to the process by some who claim that the peroxid of hydrogen must rapidly be destroyed by the organic substances present in the liquid. It is very easy to prove that this supposition is incorrect, for at any stage of the process up to the final addition of the alkali free peroxid of hydrogen may be found by the usual chemic tests, such as the blue color which develops with the iodid of starch, and the pretty reaction with a mixture of bichromate of potash and sulphuric acid, in which the free peroxid of hydrogen causes a beautiful blue color to develop.

The greatest possible care is necessary in the preparation of this oxytuberculin, for if any appreciable quantity should escape oxidation fatal tuberculin poisoning might result from the large quantities which must be administered. It should be carefully tested, first on animals and then on patients. This oxytuberculin, after it has been thus carefully prepared and tested, is injected hypodermically into any part of the body. I prefer the back and inject the remedy well under the skin. The most scrupulous care must be taken. If the lymph should be in the least clouded, or any other condition be present that would suggest infection, it should be sterilized by heat for at least fifteen minutes. Ordinary syringes should not be used, but such as are employed with antitoxin. I have made many thousand such injections without causing the formation of a single abscess or even an induration of the skin. The liquid causes no greater local disturbance than any indifferent fluid would produce. There is no reddening of the skin or other sign of localized inflammation. In a few minutes the fluid injected is absorbed and the patient suffers no further inconvenience except sometimes a little smarting at the site of injection. There is no rise of temperature, or any other unpleasant constitutional effect. Within a few days the cough and expectoration diminish, and the most striking effect is the rapid improvement in the appearance of the patient. His eyes become bright and his color changes from the gray hue of tuberculosis to one more nearly resembling that of health. The appetite rapidly returns, and with it a feeling of vigor which is most pleasing to the patient and to the physician. This is especially evident in the very early cases in which there is little or no fever. In cases in which only slight fever is present the higher temperature soon diminishes and in many instances becomes entirely normal. At the same time the infiltration of the lung gradually disappears, so that a most careful examination fails to reveal any deviation whatsoever from the normal after the treatment is completed.

The tubercle bacilli in the sputum may rapidly diminish in number and finally disappear altogether, as I have found in a number of cases.

Every physician has seen patients with tuberculosis recover, but it has never before been my good fortune to witness such rapid changes as have taken place in several that had been examined by other physicians both before and during the treatment. The patients that have recovered have thus far remained well. If any test of the method should be made by other members of the profession I would earnestly request that provisionally only early cases of the disease be treated, in which there is no development of cavities in the lung, in which fever is slight, and in patients in whom the constitutional condition is such that a return to health may reasonably be expected.

One of the most striking demonstrations of the value of the remedy occurred in a case of tuberculosis of the hand. A physician infected the dorsum of his right hand, and an ulceration developed which microscopic examination showed to be tuberculous. It was treated in the usual manner, and without beneficial result, so that the surgeon was about to make an extensive excision which was to be followed by skin grafting. Instead, local applications of the oxytuberculin were made and very rapid healing took place, leaving behind the same kind of scar as would have resulted from a non-infected ulcer. As a confirmation of this observation I show you here a dog that was vaccinated upon the back in a large number of places with a virulent pure culture of tubercle bacilli. After a short time, numerous tuberculous ulcers developed, in the pus of which the bacilli of tuberculosis were demonstrated. A section made by Dr. Rixford showed bacilli in the tissues. The dog was then chloroformed and a piece of the skin with the tuberculous ulcers was removed. The dog was then treated daily with hypodermic injections of oxytuberculin. The ulcers rapidly healed, and you now see the animal with the scar resulting from the removal of part of the tuberculous skin but with no sign of the disease with which he was inoculated. I will say that since the injections of oxytuberculin the dog that was ailing, feeble, and without desire for food, has become bright, strong, and vigorous, and has developed a voracious appetite.

The patients that have been treated by me with the oxytuberculin, those who came in the very early stage of the disease, before cavities were present, have been rapidly cured. By cure I mean a complete cessation of cough and disappearance of all symptoms of disease on the part of the patient, together with the return of a normal condition of the lung, as shown by physical examination. Above all,

do I demand in these cases that the tubercle bacilli shall no longer be found in the sputum. Patients in whom the disease was moderately advanced have likewise rapidly improved, and some have entirely recovered. Of the very advanced cases, many have shown marked improvement, and many patients that I have declined to treat as being too far advanced but who pleaded so hard for the treatment that I could not refuse, have surprised me by the wonderful improvement they have shown. Some in the last stages of the disease who presented themselves with high fever, and who were cyanotic and gasping, have died. No treatment could be expected to benefit such patients. Of course they throw a cloud upon the statistics for they must honestly be reported with the more favorable ones. I shall therefore present to you all of the cases I have treated with oxytuberculin, but request you not to judge of the treatment by the advanced cases, for which I make no claim, whatsoever.

In order to systematize our observations I will divide the cases into four sets depending upon the stage of the disease. In the first stage we find infiltration of the lungs, with more or less pallor, loss of weight, and cough, and with sputum containing tubercle bacilli. The bacilli may be absent at repeated examinations and yet finally be found. In the second stage there is extensive infiltration of the lungs, with hectic fever, emaciation, and a large quantity of sputum containing the bacilli, but no cavities. In the third stage there are cavities, but still a fair degree of vigor. There is no dyspnea when the patient is quiet, but marked shortness of breath on exertion. In the fourth stage there are large cavities, with the usual signs of advanced consumption, and the dyspnea is very decided even when the patient is sitting or lying down.

Many of the patients here presented in person and represented in the accompanying table have been seen by other physicians before and during the treatment. My colleagues have confirmed my observations, and I am certain that they will agree that I have not erred in making my reports too favorable. It has been my purpose to be as skeptical as possible and I have striven to make the showing rather less favorable than too much so. I find that the patients that had been treated with oxytuberculin insufficiently oxidized did not give the same results as those treated with the newer preparation, and therefore have tabulated the cases separately.

Clinical observation having thus shown the very marked effect of oxytuberculin, it remains for us to establish in what manner this cure is effected. There are two methods by which the body may rid itself of an invading micro-organism; the one is by the en-

feeblement of the germ, and the other is by the invigoration of the body so that it becomes sufficiently potent to expel the invader. We know that we are all constantly taking the bacillus of tuberculosis into our bodies. It has been shown by Loomis at *post-mortem* examinations of healthy individuals who have died from accident that many have tubercle bacilli stored up in the bronchial glands, out of harm's way but alive and able to infect guinea-pigs when injected into them. Again, we constantly observe that tuberculosis develops when the patient becomes physically depressed, when the vital forces are at low ebb. On the other hand, innumerable patients with consumption recover under the influence of favorable hygienic conditions. The antitoxins of the infectious diseases probably act in a somewhat similar manner, for experiment has proved that they neutralize the pernicious toxins which are formed by the germs and which enfeeble the body by their poisonous influence. Upon the germs themselves they have little influence, for we know that pathogenic organisms flourish in the very serum which is used to antagonize their effect upon the body. How is it with oxytuberculin? It will be my privilege to prove to you that oxytuberculin directly prevents the growth of the bacillus of tuberculosis; that its action is specific upon that germ and that it is not due to a general antiseptic effect. If we take veal bouillon containing 4 per cent. of glycerin, 1 per cent. of peptone, and  $1\frac{1}{2}$  per cent. of salt, and add to every 1000 c.c. thereof, when neutralized to litmus, 3 c.c. of a normal solution of carbonate of soda, we will find that the bacillus tuberculosis will grow vigorously upon it. If we mix this veal bouillon with equal parts of tuberculin, made similarly alkaline, the germ will flourish just the same, but if we use oxytuberculin made from the same tuberculin rendered alkaline to the same degree, the bacillus of tuberculosis will not grow. In other words, the oxytuberculin inhibits in the culture-tube the growth of the germ of tuberculosis just as it cures the consumption in the patient. Not only can this be proved by the simple culture experiment, but the strength of the oxytuberculin can most accurately be gauged by the same process. If to our standard alkaline-glycerin-veal-bouillon we add oxytuberculin in varying proportions, it will be a simple matter to find the weakest dilution of the oxytuberculin in which the growth of the bacillus will be inhibited, and thus it may be standardized. In a similar manner any oxytuberculin may be standardized, so that when we use it we may know accurately how potent the remedy is which we are employing. Such a method of estimating the strength of a preparation is infinitely superior to that of judging it from its effect upon more or less resistant animals.

From the very beginning of the experiments it was my purpose to discover some means of knowing how long I should continue the oxidation in order that all of the tuberculin should be changed to oxytuberculin, and none of the latter be destroyed. There was no chemical test known, and all of my efforts to find one were in vain. I was therefore compelled to make use of the reaction of tuberculous guinea-pigs to find the point when no effective tuberculin could be found. It is clear that a certain amount of the tuberculin might be present but neutralized in its effects by the oxytuberculin. Under such circumstances we would get no deleterious tuberculin influence, but still not the best possible oxytuberculin action. In the manufacture of the oxytuberculin I had gradually begun to lengthen the time during which I heated the tuberculin with the peroxid of hydrogen, and finally decided upon the method of sterilizing for four days. Oxytuberculin so prepared gave excellent results and no reactions until I happened to use large doses (40 c.c.) in the case of a highly sensitive hospital patient. A slight rise of temperature occurred that made me feel that all of the tuberculin had not been converted. About this time I had discovered the inhibitory influence of the oxytuberculin, and I immediately concluded that this influence would teach me what was the best length of time to continue the oxidation. I reasoned that if my theory was a correct one, as I continued the oxidation, this inhibitory power must gradually increase until the maximum is reached, and as the oxytuberculin produced is gradually destroyed by further oxidation, from this point on there must be a gradual decline of this inhibitory power. Such, indeed, was the result obtained. I sterilized tuberculin with peroxid of hydrogen for 176 hours, adding the peroxid every twelve hours and removing portions of the lymph for comparison at 96, 120, 144, and 156 hours. The final oxytuberculin which had been sterilized 176 hours contained but fifty-three per cent. of the quantity that was present in that sterilized only ninety-six hours, and in order to make a fair comparison, after free peroxid in all the preparations was removed by rendering them alkaline and heating, all were diluted to the same proportion with distilled water, the quantity added depending upon the degree to which it had been diluted in the process of preparation by addition of peroxid of hydrogen, which, of course, had become changed to water. All of the preparations were then neutralized and three-tenths of one per cent. of normal carbonate of soda added. Each of the oxytuberculins was mixed with an equal quantity of standard veal bouillon and inoculated with a pure culture of the bacillus tuberculosis. As a control, standard veal

bouillon was mixed with an equal quantity of water to which three-tenths of one per cent. of normal carbonate of soda was added and was likewise inoculated with the same germ. There was rapid growth in the veal bouillon, less in the 96-hour oxytuberculin, and hardly any in the 120-hour oxytuberculin, which, you will remember, had been diluted with water and veal bouillon to only 26½ per cent. In the 144-hour oxytuberculin growth increased, was greater in the 156-hour preparation, and in that sterilized 176 hours was almost as great as in the veal bouillon. This simple experiment not only confirmed our previous culture-tests, but likewise taught that at least 120 hours and less than 144 hours are necessary to obtain the best results. In point of fact, as soon as I began to use oxytuberculin so prepared upon my patients immediate and striking results occurred such as I had not witnessed before. I shall now narrow the range still more by tests of oxytuberculins heated for different periods between 120 and 144 hours. I have done this in part with another sample of oxytuberculin which was sterilized 144 hours and a portion removed after 134-hours' sterilization. These were made 0.3 per cent. normal alkalin, and each was mixed with equal quantities of standard veal bouillon. They were inoculated with tuberculosis at the same time as was veal bouillon. Three cultures of veal bouillon and four each of 134- and 144-hours' oxytuberculin were made. All of the veal bouillon and all of the 144-hour oxytuberculin flasks showed vigorous growth and none of the 134-hour oxytuberculin flasks.

Provisional experiments made with cultures of staphylococcus, micrococcus urea, bacillus typhosus, and bacillus diphtheriae have given results analogous to those obtained with the bacillus tuberculosis. Cultures of these germs were sterilized and filtered in the same manner and were oxidized similarly with the peroxid of hydrogen for various periods and then treated in the same manner. They were likewise mixed with veal bouillon and inoculated with the respective germs, as was a control with veal bouillon. In all of them a complete suppression of the growth of the micro-organism occurred, but the length of time that oxidation was necessary to produce this result differed with different germs. The presence of the inhibitory action of the oxytoxin upon growth of the germ in four cases, in addition to that observed, proves the universality of the law and permits us to reason from analogy that not only will all of these diseases yield to oxytoxic treatment, but that this must be true of every disease the germ of which we can cultivate.

I will now call your attention to the tables which show the effect of the oxytoxins of the various germs.

As my attention had been directed to the faint possibility that the inhibitory influence might be due to the reaction of peroxid of hydrogen on veal bouillon, I treated that liquid with the oxidizer in the same manner as the cultures, sterilizing for 130 hours, and found that it had no effect whatsoever in any case.

#### MICROCOCCUS UREÆ.

Hours of oxidation.	Hours of growth.			
	24	30	43	70
43	?	Growth.	Growth.	Growth.
65	No growth.	No growth.	No growth.	No growth.
90	No growth.	No growth.	No growth.	No growth.
125	No growth.	No growth.	No growth.	No growth.
130	No growth.	No growth.	No growth.	No growth.
Veal bouillon	Growth.	Growth.	Growth.	Growth.

#### TYPHOID.

Hours of oxidation.	Hours of growth.			
	24	30	43	70
43	Growth.	Growth.	Growth.	Growth.
65	Growth.	Growth.	Growth.	Growth.
90	Growth.	Growth.	Growth.	Growth.
125	Growth.	Growth.	Growth.	Growth.
130	No growth.	No growth.	No growth.	No growth.
Veal bouillon	Growth.	Growth.	Growth.	Growth.

#### DIPHTHERIA.

Hours of oxidation.	Hours of growth.			
	24	30	43	70
43	Growth.	Growth.	Growth.	Growth.
65	No growth.	No growth.	No growth.	No growth.
90	No growth.	No growth.	No growth.	Slight.
125	No growth.	No growth.	No growth.	Growth.
130	Growth.	Growth.	Growth.	Growth.
Veal bouillon	Growth.	Growth.	Growth.	Growth.

#### STAPHYLOCOCCUS.

Hours of oxidation.	Hours of growth.			
	24	30	43	70
43	Growth.	Growth.	Growth.	Growth.
65	Growth.	Growth.	Growth.	Growth.
90	Growth.	Growth.	Growth.	Growth.
125	Growth.	Growth.	Growth.	Growth.
130	No growth.	No growth.	No growth.	No growth.
Veal bouillon	Growth.	Growth.	Growth.	Growth.

All of these tests show conclusively that the oxytuberculin inhibits the growth of the bacillus of tuberculosis. That this is a specific effect and not due to a general antiseptic action is proved by the facility with which other germs develop in the fluid. From all of the statements made, I believe that I have proved beyond reasonable doubt that consumption may be cured by the use of oxytuberculin if the remedy is administered during the early stages of the disease, and that the cure is effected by a direct action upon the causative germ.

## GENERAL SUMMARY.

Stage.		Total number treated.	Bacilli.					
			Cured.	Much improved.	Slightly improved.	Unimproved.	Worse.	Dead.
4th, old method.....	16	0	1					
4th, new method.....	11	1	1	2	2	3	4	
3d.....	25	2	1	2	2	3	1	
2d.....	9	4	5	0	0	0	0	
1st.....	4	4	0	0	0	0	0	
Total.....	65	11	29	5	8	7	5	

## FIRST STAGE.

No.	Name.	Number days treated.	Bacilli.						
			Before.	After.	Cured.	Much improved.	Slightly improved.	Unimproved.	Worse.
1. F. A. A.	134	Moderate.	None.	1	0	0			
2. M. L.	16	None.	None.	1	0	0			
3. M. Q.	305	None.	None.	1	0	0			
4. R. W. R.	106	None.	None.	1	0	0			

## SECOND STAGE.

No.	Name.	Number days treated.	Bacilli.						
			Before.	After.	Cured.	Much improved.	Slightly improved.	Unimproved.	Worse.
1. E. G.	258	Large. Moderate.	None.	1	0	0			
2. W. M.	75	Not ex. Large. Moderate.	o	1	0	0			
3. N. R.	83	Hardly. Large. Any. Mod.	o	1	0	0			
4. E. S.	91	Large. Large. Moderate.	o	1	0	0			
5. Father S.	99	None. None.	1	0	0	0			
6. V. C. <sup>1</sup>	100	found. Large. Moderate.	None.	1	0	0			
7. C. V.	90	Large. Moderate.	None.	1	0	0			
8. T. L.	180	Large. None.	o	1	0	0			
9. R. W. R. <sup>2</sup>	36	None.	o	1	0	0			

<sup>1</sup> Sputum not examined until (through oversight) the patient had been treated one month.

<sup>2</sup> Bacilli found by former physician who sent the patient to me.

## THIRD STAGE.

No.	Name.	Number days treated.	Bacilli.	
			Before.	After.
1. D. B.	26	Moderate.	Not ex.	o
2. S. D.	254	Large.	None.	1
3. E. E.	37	Large.	Not ex.	o
4. A. G.	126	Moderate.	Large.	o
5. F. J.	162	Large.	None.	1
6. M. L.	31	Large.	Large.	o
7. J. M.	141	Large.	Hardly	o
8. S. M.	365	any.	Moderate.	o
9. A. M.	30	Large.	Not ex.	o
10. C. M.	22	Moderate.	Not ex.	o
11. R. N.	237	Large.	Moderate.	o
12. H. P.	285	Large.	None.	1
13. T. P.	33	Large.	Not ex.	o
14. L. T.	40	Moderate.	Not ex.	o
15. F. A. S.	108	Moderate.	Moderate.	o
16. C. H. W.	42	Large.	Large.	o
17. M. W.	146	Few.	None.	1
18. J. W.	254	Large.	Moderate.	o
19. T. M.	250	Large.	Moderate.	o
20. F. D. R.	300	Large.	None.	1
21. W. H.	280	Large.	Moderate.	o
22. M. W.	120	Small.	Moderate.	1
23. P. S.	40	Moderate.	Large.	o
24. J. D.	30	Large.	Moderate.	o
25. T. T.	80	Large.	Large.	o

## FOURTH STAGE, NEW METHOD.

No.	Name.	Number days treated.	Bacilli.	
			Before.	After.
1. D. A. C.	172	Large.	Moderate.	o
2. C. F.	165	Large.	Moderate.	o
3. T. J.	164	Large.	Not ex.	o
4. G. A. K.	57	Large.	Not ex.	o
5. J. M.	481	Large.	None.	o
6. J. M.	365	Large.	Hardly	o
7. B. M.	363	Very few.	Moderate.	o
8. W. R. P.	54	Large.	Large.	o
9. P. P.	235	Large.	Moderate.	o
10. G. Ph.	199	Large.	Moderate.	o
11. D. H.	130	Large.	Moderate.	o

**Dr. William Thompson of Philadelphia Honored.**—The Trustees of Jefferson Medical College have elected Dr. William Thompson Emeritus Professor of Ophthalmology at that institution in recognition of his services as a teacher of diseases of the eye during a period of nearly twenty-four years.

**TRAUMATIC PROLAPSE OF THE IRIS AND  
ITS TREATMENT.<sup>1</sup>**

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EVIDENTLY no single rule of surgical conduct is applicable to each case of traumatic prolapse of the iris, and for the sake of convenience, as well as for therapeutic consideration, these lesions may be considered from the regional standpoint, *i.e.*:

*I. Cases of Prolapse of the Iris Through Wounds at or near the Corneoscleral Junction, Forming the Well-known Pouch-like Hernia.*—If seen early, that is before the anterior chamber has been reformed, owing to closure of the wound by adhesive inflammation, three courses are open to the surgeon :

1. Replacement of the prolapsed iris and the management of the case in the ordinary manner with pressure, bandage, and rest ; or, in the event of failure,

2. Abscision of the prolapsed iris, precisely as in the operation of iridectomy.

If either after replacement or abscession the wound shows a tendency to gape, or is not neatly coapted, and hence the danger of re-prolapse is rendered likely, the wound may be closed with one or more delicate silk sutures.

3. Compressive bandage, rest, etc., without manipulation or abscession of the iris.

Although the advice to replace the prolapsed iris, if possible, is always given, and properly so, in point of fact the opportunities to accomplish this maneuver successfully are comparatively rare, and hence practically the choice lies between an operative and non-operative procedure.

Eyes with this lesion treated without surgical interference, and which heal without infective inflammation, present an adherent peripheral leucoma and an oval, mobile pupil, and have good vision. Sometimes, indeed frequently, healing proceeds without signs of reaction ; at other times there is iritic and ciliary irritation, and withal the nuisance of prolonged bandaging and protracted convalescence.

Eyes with this lesion successfully treated by abscession, with or without a stitch, according to the indications, heal with comparatively little scar and present a narrow keyhole-shaped, mobile pupil and non-adherent iris. The time required for cure, as compared with cases treated upon conservative principles, is short. An illustrative case is the following :

**CASE I.**—A laborer, aged twenty-four, was struck in the right eye with a chip of wrought iron, causing a small, irregular wound, beginning directly at the

corneoscleral junction in the upper and inner quadrant, and passing irregularly inward across the ciliary region for a distance of one centimeter. When examined, nine hours after the accident, the tension was minus two. Through the wound in the corneoscleral junction protruded a mass of iris and blood-clot and the face of the iris (the anterior chamber was empty) was covered with a large blood stain. Vision amounted to counting fingers at six inches. A red reflex was visible from the eye, but the details of the fundus could not be seen. After sterilization of the conjunctival sac with repeated forced flushings with a saturated boric-acid lotion, the lips of the wound were separated and all prolapsed iris and adherent clot abscised, in precisely the same manner as when the operation of iridectomy is performed. With a flat spatula, the edges of the coloboma were carefully smoothed and the incision in the sclera neatly coapted. A drop of atropin was instilled, a light, sterile bandage applied, and the patient put to bed with the following directions to the nurse : One-sixth of a grain of calomel every two hours ; continuous iced compresses to the injured eye, these compresses being placed upon the folds of the gauze bandage ; and rest as much as possible in the dorsal position. In forty-eight hours the wound was closed and the anterior chamber restored. At the end of ten days the patient was dismissed with a neat coloboma upward and inward, a healed corneal wound, an iris of normal color, the media clear, and vision  $\frac{2}{3}$  without correcting lens. With correction of the acquired astigmatism, which will lessen, vision became still better.

This is a type of many similar cases, and represents a common experience. I cannot understand what advantage, under these circumstances, a non-operative treatment would possess.

If the case is seen late—that is, after the anterior chamber has been reformed owing to the closure of the wound by adhesive inflammation—two courses are open to the surgeon : (a) Compressive bandage, etc., *i.e.*, non-operative, or so-called conservative measures. (b) Abscision of the prolapse, freeing of the wound from adherent and incarcerated iris, paring the wound-edges, and uniting them with a suture ; or, if no suture is used, allowing the wound to unite under a compression bandage. Personally, I am governed by the following considerations in the management of this class of cases : If there are no threatening symptoms and no increase in the size of the prolapse, I leave it alone ; if, however, there arise irritation from bandaging, ciliary congestion, and increase in the protrusion in spite of pressure, I abscise it, and, in recent years, close the wound with a suture. The following is a case in point :

**CASE II.**—Joseph P., an Italian laborer, aged about thirty-five, came to the Jefferson Medical College Hospital on May 29, 1896, with a small wound in the lower corneoscleral junction,

<sup>1</sup> Read before the Ophthalmic Section of the New York Academy of Medicine, April 19, 1897.

through which there was a pear-shaped protrusion of the iris and sufficient adhesive inflammation to have closed the wound and restored the anterior chamber. A small amount of ciliary irritation surrounded the lesion. Vision equalled  $\frac{1}{100}$ . The media were clear and the fundus normal. In spite of a pressure bandage, the iris protrusion continued to grow; hence it was abscised, the edges of the wound pared, two silk sutures introduced, and the patient kept in bed for two days. He was dismissed at the end of the third day with a healed wound, restored anterior chamber, and ovoid pupil, such as one sees in a narrow, downward iridectomy. He continued as an out-patient until the wound was free from irritation, and was not again seen until February, 1897, nearly a year after the original accident, when his eye was perfectly quiet, the scar scarcely detectable, and the vision  $\frac{1}{10}$  with correcting glass.

In a number of cases treated by abscission of the prolapse and suture of the wound, I have never seen anything but good results, except in one instance which represents an unusual but not impossible complication. The case has already been reported,<sup>1</sup> but may be briefly referred to:

CASE III.—On the 28th of February, 1896, a girl aged three and a half years, was brought to the Jefferson Medical College Hospital for traumatic hernia of the iris. The child had received an injury of the right eye from a pair of sharp scissors at the corneoscleral junction, through which there was an extensive prolapse of the iris. There was little irritation and the anterior chamber had been restored, but as the prolapse appeared to be increasing, it was abscised. The operation was followed by a smart hemorrhage which filled the anterior chamber. A pressure bandage was applied and the child was put to bed. At the end of twenty-four hours, absorption of this blood had taken place, but partly owing to the extreme restlessness of the patient, successive hemorrhages occurred, and when she was dismissed from the hospital three days later, at the request of her parents, although contrary to our advice, the anterior chamber was so full of blood that all underlying tissues were obscured. One week later there were distinct symptoms of cyclitis, a fine flush surrounding the corneal margin. Under atropin and the internal administration of small doses of calomel this condition subsided. In fact, the cyclitis disappeared, in spite of the fact that in the meantime the child was attacked with measles and passed through the ordinary phenomena of this exanthem. As early as the tenth day after the operation, and very markedly after the attack of measles, we began to notice a discoloration of the cornea. This increased until there was typical blood-staining of the cornea, which caused this membrane to assume a greenish-brown color, with the exception of a small rim, two millimeters in diameter at its circumference.

There is little doubt that the hemorrhage follow-

ing the abscission of the iris was responsible for the blood-staining of the cornea. Whether the condition would have healed promptly and favorably without operative interference is a matter of pure speculation.

*II. Cases of Prolapse of the Iris Through a Wound Extending Nearly or Entirely Across the Breadth of the Cornea, either Vertically or Horizontally.*—These cases, it seems to me, present an entirely different problem from prolapse of the iris at the corneoscleral junction; first, because the prolapse usually is more extensive; second, the underlying structures are more apt to be wounded; and third, the position of the prolapse is frequently such that a mydriatic is able to exert its most favorable influence.

If seen early—that is, before there is marked adhesion between the prolapsed iris and the edges of the wound—it may be possible to replace the iris in whole or in part and keep it in position by pressure, atropin, and dorsal decubitus. If it is not possible to replace it through the entire length of the wound, the central portions of it may be freed with the spatula, while the prolapse at the peripheral end of the wound—that is the one approaching the corneoscleral junction—may be abscised and treated in the same manner as is a prolapse entirely located in this region. These cases must be exceptional, but I have one in mind with good result.

If seen later—that is, when the iris has already become firmly adherent to the edges of the wound and the wound is at all extensive in length—I am inclined to agree with the advice recently recorded by Dr. Knapp, namely, to "treat the case expectantly as long as no threatening symptoms appear." This treatment, I believe, should be the one already detailed, atropin, or other reliable mydriatic, rest in bed, and compressing bandage. The chief reason for it, in my judgment, depends upon the fact that, in addition to the value of pressure, the favorable physiologic action of atropin or other mydratics upon the iris is secured in a way that is not obtained when the prolapse is at or close to the corneoscleral junction. The mydriatic rolls the iris back and tends to draw the prolapsed portion from the wound. This is proved by the fact that in many of these cases the iris is drawn out of the incision toward the central portion of the wound, while it remains clamped in the periphery where the drag upon it is less effective.

To be sure, even when the prolapse is solely located in the periphery, there is also some influence exerted by the mydriatic to withdraw the attached iris from its position, an effect, however, which is partly, if not entirely, counteracted by the equal effect of rolling back another portion of the iris toward the prolapse. For this very reason, in the

<sup>1</sup> Philadelphia Polyclinic, September 5, 1895.

peripheral cases, it has been the habit of surgeons to employ eserin, with the hope that under the influence of the contraction of the pupil the iris will be drawn from its attached position in the corneal periphery. My experience, however, is that eserin is very apt to increase ciliary irritation, and is not an acceptable drug in traumatic prolapse of the iris. I make exception of a few cases of prolapse after cataract extraction, in which I have seen it act very favorably. Moreover, abscission of an extensive prolapse across the corneal breadth results not in a small, smooth coloboma, but in a more or less unshapely loss of iris tissue. Touching this point, the following illustrative case may be introduced:

CASE IV.—Mary H., a child about one year of age, was brought to the Jefferson Medical College Hospital on March, 24, 1897, with the history that she was struck in the eye with a piece of metal attached to a window blind. The accident occurred four days before her entrance into the hospital. She had been under treatment in another institution, but the parents becoming dissatisfied, they had sought other advice. The wound extended from a half millimeter in the upper ciliary region, in a curvilinear manner, downward across the cornea, terminating a little beyond its middle. The iris was extensively prolapsed and the eyeball congested, but as far as could be seen there was no injury of the deeper structures. The treatment consisted entirely of pressure bandage and atropin, and resulted in a steady subsidence of the prolapse, so that at the present writing the eye is nearly white and quiet, with a small, non-protruding attachment of the iris near the center of the wound, with the indications that it will be entirely withdrawn into the anterior chamber, the drag on the iris by means of the atropin toward the periphery having been sufficient to draw this tissue out of the lips of the wound, except at the point mentioned.

Bacteriologic examination is an important factor in deciding whether or not there should be surgical interference in cases of prolapse of the iris seen late—that is, after closure of the wound by adhesive inflammation. As has been pointed out by Knapp, the surrounding cornea is infiltrated with micro-organisms, although the iritic tissue itself may be free from them. A case in point is the following:

CASE V.—A boy about ten years of age came to me ten days after he was struck in the right eye with a sharp stick, which cut a ragged wound at the inner side of the cornea, extending vertically across its entire breadth. The iris tissue was clamped in the wound and protruding, and a grayish line was manifest about the center of this tissue and extended somewhat into the corneal area. The lens appeared to be partially opaque.

Inoculations from the conjunctiva, which had been frequently washed with a saturated solution of boric acid by the attending physician and had been

cleansed only a short time before the inoculation was made, proved to be sterile. Inoculations from the grayish line previously described, which, it should be understood, was not in the iris tissue itself, but on the surface of the lymph which covered it, and in the surrounding corneal tissue, yielded a perfectly pure culture of *staphylococcus cereus albus*.

Although the child was brought with the expectation of operative interference, advice against reopening the wound and abscessing the prolapsed iris was given. The situation of the prolapse was such that the favorable action of atropin could be obtained; there were no marked signs of bandage irritation or ciliary congestion; and opening of the wound would, it seems to me, only have liberated, as it were, staphylococci and presented to them paths for entrance into the deeper ocular structures. Hence, the advice of expectant treatment, with the suggestion that probably later the case would have to be dealt with on the principles which govern the management of traumatic cataract.

III. *Cases of Prolapse of the Iris Through a Corneal or Corneoscleral Wound, Associated with Lesion of the Underlying Structures, Generally the Crystalline Lens.*—Certainly no hard and fast rule can be given to cover all cases, which, however, naturally divide themselves into two chief classes :

1. Those cases in which the lesion is so extensive that conservation of the eye is problematical. With these instances we are not specially concerned this evening.

2. Those cases associated with injury of the lens and followed by opacification and swelling of its tissue. The urgency of the symptoms and the age of the injury must decide action. Some of these cases must be relegated to the class already referred to and illustrated, by an example to which expectant and primarily non-operative treatment is suited. In others, both lesions may be dealt with at one sitting.

CASE VI.—For example, in a case not long since under my care, the wound being in the upper portion of the cornea and seen about ten or twelve days after the accident, the lens being opaque and partially protruding into the anterior chamber, a small, upward corneal section was made, the prolapsed iris seized and removed, and the soft lens-matter expressed through the wound. The primary vision, without treatment of the capsule, was  $\frac{1}{10}$ . Subsequently there was thickening of the capsule and the vision dropped to  $\frac{1}{100}$ . The patient declined to allow division of the membrane.

Such a procedure, if possible, seems to me more desirable than a primarily non-operative course, for, at all events, operation later on is sure to be needed.

IV. *Cases of Prolapse of the Iris Through a Corneal Wound, with Prolapse of the Ciliary Body or*

*Process Through its Scleral Extension.*—Under these circumstances, my experience coincides with that recently recorded by Dr. Knapp. The iris portion of the hernia may become quiet, or even withdrawn into the anterior chamber, while the ciliary end of the lesion forms a cyst-like protuberance. Therefore, if I see a case of this character, and it is a proper one for this manipulation, I clear the wound of all protruding ciliary tissue, if I may so express myself, and close it with sutures. These sutures are passed, however, through the conjunctiva overlying the wound and not through the sclera; at least, I am disinclined to pass them through the sclera unless absolutely sure that this can be done without inclusion of any uveal tissue in the stitch.

If the case is seen late, *i.e.*, after the cyst has formed, the latter is excised and the eye treated exactly as after abscission of pouch-like hernias of the iris already described. While it is true, as pointed out by Knapp, that prolapses of the ciliary tissues "are apt to produce cyst-like ectasias which, for their cure, require thorough excision," this rule also meets with exception.

**CASE VII.**—A girl, aged eleven, came to the Jefferson Medical College Hospital in the early portion of 1896, with the history that one year previously she had been wounded in the right eye with the tine of a fork. Downward and inward in the ciliary region, about four millimeters from the corneal margin, was a small, translucent, cyst-like ectasia, with dark-colored base. The eye was otherwise normal. Complaint was made of pain, watering, and photophobia of the left eye, and, apprehensive of sympathetic trouble, the patient was kept under observation for some time. She then disappeared from view, and was not again seen until the present month—more than two years after the injury, when the cyst, about the size of a small pea, was found in exactly the same condition as at her first visit. In the meantime the refractive error had been corrected, and both eyes were quiet and comfortable.

**V. Management of the Adherent, Non-bulging Cicatrix After Healing of an Iris Prolapse.**—As may have been gathered from what has been previously said, one of the chief advantages of operative interference in traumatic prolapse of the iris, under those circumstances in which I believe it to be not only justifiable, but the best procedure, is the securing of a non-adherent cicatrix. Now, although eyes which have healed without infective inflammation and without surgical interference are usually perfectly quiet, non-irritable organs, in a certain number of cases, the slight drag on the attached iris during the movements of the pupil is the cause of pain and discomfort. Therefore, I would like to add one word in regard to what I may call the treatment of the sequel of prolapse of the iris, that is, of the adherent cica-

trix. Take, for example, the case of the girl detailed, in which the iris prolapsed through a curvilinear wound extending half way across the breadth of the cornea, and was withdrawn into the anterior chamber at all points except one near the center of the scar. At this point the iris was attached and lifted up in a minute tent-like extension, the pupil below it being somewhat ovoid in shape. In cases of this character, I am accustomed to free the attached iris from the scar by the ordinary operation of division of anterior synechia. The method I prefer is the one specially advocated by Mr. Lang of Moorfield Hospital, in which an instrument not unlike the Knapp knife-needle is introduced into the anterior chamber and the synechia divided by a slight lever-like movement. The iris drops back into place, a drop of atropin solution rolls it out of danger of re-prolapse, and a circular pupil is secured. It is less easy to accomplish this maneuver when the iris is prolapsed in the periphery or angle of the anterior chamber, although it can also be done there with the same result. I have never seen harm follow this slight operation, and I have more than once seen an eye thus relieved, which had previously been persistently painful, grow comfortable and quiet.

The question of prolapse of the iris as the result of perforating ulcers of the cornea is not part of the discussion this evening, but it perhaps is not entirely out of place to say that these cases seem to me to demand the same line of treatment as the traumatic ones, and the management of the case is governed by the same principles as those already enunciated. In a few instances where the prolapse has been an extensive one and has protruded through a large, somewhat irregular opening, which could not be neatly coapted with stitches, I have very successfully planted a flap, after the manner of Gama Pinto.

In one instance, associated with the last stage of a gonorrhreal conjunctivitis, I took the graft from the opposite or sound eye.<sup>1</sup>

With reference to *prolapse of the iris as a complication of the simple extraction of cataract*, my practice is the same, I believe, as that of many surgeons, chiefly Dr. Knapp, namely: If the prolapse is discovered within a few hours after its occurrence, it is cut off and the edges of the iris reduced, exactly as after the operation of iridectomy. If the prolapse is not noted until later, for example, the third or fourth day, it is allowed to remain until the eye is quiet, when, if there is staphylomatous bulging, the protrusion is abscised, or, in other words, treated as is a staphyloma of the cornea.

In a few instances I have inserted after this operation one or two delicate silk sutures, and have been

<sup>1</sup> Philadelphia Polyclinic, 1896, vol. v, No. 14.

pleased with the result. Once I have seen the pro-lapse entirely reduced by the use of eserin, the iris being withdrawn into the anterior chamber and the pupil becoming perfectly circular on the sixth day after the accident.

In the beginning of this paper I said, "Evidently no single rule of surgical conduct is applicable to each case of traumatic prolapse of the iris." But if an attempt to formulate such a rule should be made, which, like all other rules, must meet with exceptions, it would read somewhat as follows: Whenever it is possible to secure clean removal of the protruding tissue operative interference is indicated; when this is not possible non-operative measures, as in the instances already described, are worthy of consideration and adoption.

#### THE OPERATIVE TREATMENT OF SUPPURATIVE AND NON-SUPPURATIVE MIDDLE EAR INFLAMMATIONS.<sup>1</sup>

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I HAVE so frequently spoken upon the subject to which I now invite attention, that I feel some hesitation in making it the theme of this article. Were it not for the fact that the surgery of the middle ear is still in its infancy, I should scarcely feel warranted in so doing. Being convinced of the great value of middle ear operations, both in suppurative and non-suppurative otitis media, provided proper judgment is exercised in the selection of cases in which such procedures are to be instituted, I take the liberty of again referring to this method of treatment.

Chronic inflammations of the middle ear may be divided into two large classes, first, suppurative inflammation, and, second, non-suppurative inflammation. In suppurative inflammation of the middle ear, operative procedures are demanded for the relief either of a discharge from the ear, or of impairment of hearing which has resulted from a previous purulent process, the otorrhea having ceased spontaneously. A discharge from the ear, of long duration, which has failed to yield to milder measures of treatment, is always indicative of caries within the tympanum. The disrepute into which middle ear surgery, as applied to these cases, has fallen, is largely due to the fact that a careful selection of cases proper for operation has been neglected. When there is extensive caries within the tympanum, and

when this destructive process has extended into the mastoid cells as well, it is evident that the removal of the ossicles only, or in fact any operative procedure through the external auditory meatus, will fail absolutely to relieve the condition. Here a more radical operation, such as the Stacke-Schwartze, is demanded. In a certain proportion of cases, however, we find that the bony involvement is confined either to the ossicular chain or to those parts of the tympanum easily accessible through the external auditory canal. It is in these cases that the removal of the carious ossicles and a thorough curettage of the tympanum effects a complete cure. Statistics show that the percentage of cures following ossiculectomy is about equal to that obtained by the Stacke-Schwartze operation. When we consider that the cases included in these statistics were unselected, the value of the less radical operation is at once demonstrated. A careful reading of the published reports of cases proves that, in many instances at least, an unfavorable result was due simply to an incomplete operation. It is to be remembered that in about eighty-five per cent. of all cases of caries of the ossicles the incus is involved. In a large number of the reported cases, the remnant of this ossicle was not removed, the operator contenting himself by taking away the malleus. The carious incus was allowed to remain in the middle ear, and hence the discharge was not relieved. I have always insisted upon the importance of removing both ossicles to obtain a satisfactory result. If the incus has been partially destroyed the fragment of the ossicle remaining is often difficult to remove. Its extraction prolongs the operation, but is essential if a successful result is to be obtained.

The same rule applies to curettage of the tympanum. The operation should never be looked upon as completed after both the malleus and incus have been excised. Every portion of the middle ear accessible through the canal should be examined either visually or with the probe, and all softened areas should be thoroughly scraped with a sharp spoon. The same instrument should also be carried into the tympanic vault. Run off all softened bone in this region. Conducted in this way an intratympanic operation never fails to diminish greatly the discharge, and in a large proportion of cases, to cause its complete cessation. As the patient is under general anesthesia, there is no necessity for haste at the expense of thoroughness. In my own cases, the operation not infrequently has occupied an hour and a half, most of the time being spent in searching for a small fragment of the incus, and in curetting the intratympanic cavity until all softened bone had been removed.

<sup>1</sup> Read before the Southern Section of the American Laryngological, Rhinological, and Otological Society, New Orleans, March 3d, 1897.

The technic of the operation effects the result to no small degree. If the middle ear is filled with granulation tissue, this must be removed before any attempt is made to excise the ossicles. In suppurative otitis, the lining membrane of the tympanum is exceedingly vascular, and under the most favorable conditions an incision of the tissues is followed by free hemorrhage. When granulation tissue is present, the hemorrhage may be so profuse as to entirely hide the field of operation. Considerable local treatment may be necessary, therefore, before attempting to remove the carious ossicles, although the necessity for surgical interference may be apparent from the outset. It is not possible to perform a satisfactory operation for intratympanic caries under local anesthesia. The removal of the ossicles may be effected without difficulty, but the pain incident to curetting the middle ear cannot be prevented by any local application.

The proper illumination of the field of operation is also essential, and no one should operate with a poor light. My own preference is the electric light, although an oil lamp or an ordinary gas jet will afford sufficient illumination. The objection to these last two is the possible ignition of ether vapor by the exposed flame, unless the source of light is above the patient and removed at a considerable distance. With proper precautions, however, this danger can be overcome.

The steps of the operation depend largely upon the local condition. When the membrana tympani is almost completely destroyed, and the ossicles are drawn upward into Shrapnell's membrane, the procedure is usually as follows: Any adhesions posterior to the stapes are divided by a sharp-pointed knife inserted between the head of the stapes and the tympanic ring, provided the former landmark is visible. When this cannot be seen, the knife is introduced close to the posterior margin of the tympanic ring, just above the normal situation of the stapes, and is carried inward until its point impinges upon the internal wall of the middle ear. The knife is then carried downward for a distance of about one-twelfth of an inch, completely dividing all soft tissues. After this incision, the head of the stapes will often be recognized, presenting as a small white spot close to the border of the tympanic ring, the tension of the adhesions between the anterior crus and the adjacent wall of the oval niche being sufficient to pull the ossicle forward. An angular knife is then introduced in front of the stapes to free this ossicle from the incus. The long process of the incus has usually been destroyed in these cases, but it is advisable to take this precaution to prevent the possible evulsion of the stapes

when the incus is removed. The next step is to free the malleus by the division of the anterior, posterior, and external ligaments. This is done by carrying the incision from the anterior and posterior margins of the perforation completely about the malleus over the short process. It is well to cut first in front of the malleus from the superior border of the perforation, upward to the short process, and to make a second incision, in a similar manner, posteriorly, the incisions meeting above the short process.

The division of the external ligament is somewhat difficult on account of its density. It is best effected by plunging a strong sharp-pointed knife upward and inward into the tympanic vault just above the short process of the malleus, and dividing the dense bands anteriorly and posteriorly. If the manubrium is adherent to the internal wall of the middle ear, it may be separated by the use of the angular knife.

The malleus is then grasped just above the short process, and is first pushed inward to dislodge the head from the shelf-like process upon which it rests, after which it is drawn downward and outward. Occasionally, when the caries has not been extensive, the incus may be seen as soon as the malleus has been extracted, and the hemorrhage may be controlled by cotton pledgets. The part presenting is usually the long process or the portion of it which remains. It usually lies close to the posterior margin of the tympanic ring, projecting slightly beyond this. The incus-hook is then introduced into the canal and passed behind the posterior margin of the ring, the concavity of the instrument being directed forward. The instrument is then carried upward, and at the same time is rotated forward so as to displace the incus into the field of vision. As soon as this is accomplished it is grasped by the forceps and easily removed. It is important, however, not to attempt extraction when only a small portion of the bone is visible. If the operator fails to grasp the bone firmly, it is frequently displaced into a remote corner of the tympanic vault, and it is found only with the greatest difficulty. A little careful manipulation at this stage of the operation may save a great deal of time. It should be borne in mind that the incus does not lie close to the internal tympanic wall, but near the tympanic ring, its short process resting upon a ledge of bone just above the superioreposterior margin of the meatus.

Failure to extract the incus is often due to the fact that the incus-hook is passed too far into the tympanic cavity, and when rotated forward lies to the inner side of the ossicle, and consequently fails to displace it. It is better to introduce the hook just

within the tympanum and then to draw it outward until its angular extremity engages the tympanic ring. The subsequent manipulation is performed with the hook constantly in contact with this bony ring, and of necessity it must displace the ossicle if it is in its normal situation. While the hemorrhage may be rather profuse during the entire operation, it may usually be controlled by firmly packing the canal with small pledges of cotton. These pledges are allowed to remain in position for one or two minutes, and when removed the field of operation is usually found to be perfectly dry. The deepest plug may be pressed firmly against the internal wall of the middle ear without danger of displacing the stapes, the walls of the oval niche sufficiently protecting the ossicle.

To thoroughly remove carious bone from the tympanic vault, curettes of various sizes are necessary, the cutting portion of the instrument being placed at right angles to the shank. These curettes are made to cut both forward and backward, and should be used freely in every portion of the tympanum not visible through the speculum. The internal wall of the atrium should also be thoroughly curetted. Here the sense of sight aids us in discovering the carious areas.

It is to be remembered, even in the selected cases, that the surgeon should not give a too favorable prognosis as to the complete suppression of the aural discharge following such an operation. He can certainly promise that the discharge will be greatly diminished in quantity, and will be so slight as to cause no inconvenience; and he may confidently anticipate a complete cure in many instances if due care is taken to operate only on suitable cases. One of the most important arguments in favor of such a procedure is the establishment of perfect drainage through the external auditory canal. For this reason, intracranial infection cannot occur, and the danger incident to the suppurative process within the middle ear is then entirely avoided. I append the statistics of my own operations:

*Operations for Otorrhea.*—Ossiculectomy, 61 cases. Cured, 35; improved, 17; under treatment, 1; result unknown, 8; hearing made worse in a single case. Stacke-Schwartz operation, 10 cases. Cured, 6; improved, 4.

The effect of such an operation upon the hearing must always be taken into consideration, and no patient should be subjected to operation until a careful functional examination has been made. In a few instances the hearing has been impaired by the operation; in the great majority, however, the hearing is very greatly or moderately improved, or remains the same as before operative interference. The following statistics show the results obtained in

my own cases: Operations for improvement of hearing when slight otorrhea was present, 26 cases. Ossiculectomy performed in 22 cases. Improved, 17; unimproved, 5. Synechiotomy performed in 4 cases, all improved.

A certain proportion of cases is met with in which the suppurative process has undergone a spontaneous cure, and the surgeon is consulted as to the possibility of improving the function of the organ. Some of the most gratifying results obtained in aural surgery follow operative interference in these instances. The intratympanic condition is very similar to that found in hyperplastic inflammation of the middle ear. When a functional examination shows that the perceptive apparatus has not been involved secondarily, the hearing can almost certainly be improved by the division of adhesions which interfere with the mobility of the ossicular chain. In this connection it is to be remembered that any increased tension in one ear will sooner or later impair the function of the other. For this reason it is the imperative duty of the otologist to relieve the tension of the conducting apparatus in order to preserve the integrity of the opposite ear. Ordinarily the tension can be relieved by exceedingly simple measures, and the removal of the two larger ossicles and of the remnant of the drum-membrane is seldom necessary. My own rule in these cases is first to divide any adhesions between the posterior crus of the stapes and the adjacent wall of the oval niche. The stapes should then be completely separated from the long process of the incus either by disarticulation at the incudostapedial joint, if this is still intact, or by division of connective-tissue bands which may have formed after the disintegration of the descending ramus of the incus. The stapes is freed from adhesions, above, below and in front, and is cautiously mobilized by pressing it in various directions with the cotton-tipped probe. In attempting to mobilize the stapes, any undue violence must be avoided as the crura may be easily fractured if too much force is employed.

The transmission of sonorous vibrations to the labyrinthine fluid can only take place when both the stapes and the covering of the round window are fairly movable. Although the stapes may be mobilized, sound perception may still be absent. The same process which has caused the rigidity of the stapes may have produced a similar condition of the membrane of the round window. To restore the integrity of the apparatus these adhesions must be divided. To do this, an angular knife is passed into the niche of the round window and is then rotated from below upward so as to sever any adhesions which may be present. Firm pressures upon the

knife is necessary in order to accomplish the desired result. There is no danger of wounding the *membrana tympani secundaria* as, from its position, it lies in nearly the same plane as the blade of the knife.

While the procedure, as described above, may seem visionary, the results obtained constitute the proof of its practical value. I would not be understood as saying that it is possible in every case to secure a favorable result by a single operative procedure. In order to restore the equilibrium of the stapes and to enable it to perform its function in the best possible manner, repeated operations may be necessary. It is important to test the hearing frequently in order to ascertain the result of each successive synecchiotomy. In connection with the quantitative tests it is also important to determine the lower tone limit, as this should fall steadily as the conducting apparatus is rendered less rigid. Operative procedures about the stapes may immediately be followed by an impairment of the hearing on account of the formation of blood-clots, or because of the reaction incident upon such measures. A considerable interval should therefore be allowed to elapse before the patient is subjected to a second operation in order that the parts may return to their normal condition.

Great patience on the part both of the surgeon and the patient is necessary to secure a successful result; but if this rule is followed both will feel amply repaid for their persistence.

The author's results are as follows:

*Otitis Media Purulenta Residua*.—For improvement of hearing, 20 cases. Synecchiotomy performed in 18—17 improved, 1 unimproved. Ossiculectomy performed in 2 cases—1 improved, 1 unimproved.

In conjunction with operative measures, it may not be amiss to call attention to the mechanic treatment of defective audition in the residual suppurative cases. This term includes those cases in which the suppurative process has run its course and has undergone spontaneous cure. We have then simply to deal with the results of a former suppurative process instead of an active purulent inflammation.

The author claims no credit for original investigation in this line. The use of certain mechanic devices to replace the drum-membrane was employed by the earlier otologists. So far as I know, Dr. Clarence Blake of Boston was the first to use a pledget of sterilized cotton moistened in borated vaselin for this purpose. In many of the residual suppurative cases, when a small perforation exists in the lower portion of the drum-membrane, or when there is a perforation of considerable size in the

posterior and upper quadrant which exposes the head of the stapes, the hearing can often be improved by the application of a pledget of sterilized cotton in such a way as to either close the perforation or to press upon the head of the stapes. In the latter instance the efficacy of the cotton disc depends upon the presentation of a larger surface to the sound vibrations, in this way augmenting the impulse conveyed to the labyrinthine fluid. In many cases the improvement following the use of this simple device is astonishing. It would at first seem that the patient must be constantly under the care of the surgeon in order to derive any benefit from this method of treatment. The patient himself, however, soon learns to apply the cotton pledget. As soon as he is conscious that the pledget has become displaced he syringes the ear, removing the former pledget, and then inserts a new one, the increased power of audition enabling him to recognize the fact that the artificial drum is correctly placed. In fact, patients who have followed this treatment for some time become more expert in executing this manipulation than the surgeon himself.

When we come to the consideration of the non-suppurative form of the inflammation, and the operative measures which are deemed advisable for its relief, the same care must be observed in making a proper selection of cases subjected to operation. I am not infrequently requested to operate upon an ear because it is absolutely worthless and consequently cannot be injured. Unfortunately, many accept this view in selecting their operative cases, and it is for this reason that middle ear surgery has so few advocates. No argument seems necessary to prove the utter absurdity of such a practice. A careful functional examination will always enable the surgeon to determine whether the labyrinth is involved or whether the disease is confined to the middle ear. In the former instance surgery is of no avail; in the latter it almost invariably promises a certain amount of relief. In a few cases the results of functional examination may not be conclusive, and in such an event it is always advisable to open the tympanic cavity by turning down a flap of the drum-membrane so as to ascertain the extent of the middle ear lesion, and to determine to what degree it causes the impairment of function. Such an operation is easily performed under cocaine. A large flap of the *membrana tympani* may thus be reflected downward and forward, exposing the upper posterior quadrant of the tympanum. The stapes may be separated from the other elements of the ossicular chain and freed from adhesions in the manner already described. If the tests are repeated, we are able to exactly determine the importance of the

middle ear lesion; if there is no improvement, the flap may be replaced and the ear restored to its original condition. On the other hand, the labyrinthin involvement may be of less importance than was at first supposed, in which case the two larger ossicles, together with the membrana tympani, may be removed and the improvement following the exploratory tympanotomy be maintained.

An example of this occurred in one of my own cases. The history of the case led me to believe that the labyrinthin involvement—of which there was decided evidence on functional examination—was dependent upon a pre-existing middle ear lesion. After an exploratory operation, the hearing was markedly improved, and on the following day the operation was completed. The result was eminently satisfactory. The hearing in the ear operated upon was considerably improved, while the effect upon the opposite ear was even more noticeable. Before the operation, the impairment in hearing had been so considerable as to deter the patient from performing his ordinary social duties. At the present time he experiences no difficulty in mingling in society, and the slight impairment in hearing from which he suffers is not apparent.

Any inflammatory reaction following an exploratory tympanotomy invariably results from imperfect technic. With a sterile field of operation, clean instruments, and proper attention to asepsis during the operation, no inflammatory reaction occurs. If the operation is to be completed, *i. e.*, both the membrana tympani and the two larger ossicles removed, the technic is, briefly, as follows: A small pledget of sterilized cotton saturated in a sterilized twenty-per-cent. solution of cocaine is introduced through the exploratory opening to secure anesthesia. When the parts are no longer sensitive, a sharp knife is made to puncture the drum-membrane at its inferior pole, close to the tympanic ring. A blunt-pointed knife is inserted through this perforation, and the membrana tympani is divided anteriorly as close to its attachment to the ring as possible as far as the anterior fold. If perfect anesthesia has not been obtained, the operator should immediately stop and apply a cocaine solution to the margins of the incision so that the procedure will be entirely painless. The drum-membrane is then divided in the opposite direction until the entire membrana tensa is detached from the tympanic ring. It is then wise to insure complete anesthesia of the upper portion of the tympanic cavity by several applications of cocaine by means of a cotton-tipped probe. By winding the cotton firmly upon the applicator, and then bending the pledget at a right angle, it is possible to introduce the instrument for a considerable distance into the tympanic

vault, so that the division of the deeper tissues may be accomplished without pain. The probe-pointed knife is then introduced just below the posterior fold and is carried upward, dividing the posterior ligament and the posterior part of the external ligament. In the same manner the attachments to the malleus are divided anteriorly. It is seldom possible to unite these two incisions above the short process of the malleus, a small strip of the membrana flaccida still remaining intact. To completely free the ossicles, it is most frequently necessary to carry a strong, sharp knife upward and inward into the tympanic vault, directly over the short process, dividing the remaining fibers of the external ligament and the overlying part of Shrapnell's membrane. In some instances the tensor tympani muscle will displace the malleus forward as soon as these ligaments have been divided, and render its seizure with the forceps difficult. In such an event, an angular knife should be introduced behind the shaft of the malleus, and made to sever the muscle by rotating the instrument backward. The ossicle is then grasped near the short process with a pair of strong forceps, and extracted in the manner previously described in detailing the technic in suppurative cases. The incus is then removed, as already stated, this step of the operation ordinarily being less difficult than in suppurative cases. After thoroughly drying the parts, the usual dressing is applied.

After an operation upon the middle ear, it is impossible to prevent the formation of a blood-clot within the tympanum. In suppurative cases the presence of the clot interferes with free drainage, and in non-suppurative cases acts as a foreign body, causing a certain amount of inflammatory reaction. To avoid the formation of a clot, a long, narrow pledget of cotton should be carried into the meatus as far as the fundus. This will act as a drain, and prevent the accumulation either of blood or of inflammatory products within the canal. The distal extremity of the pledget is folded upon itself at the entrance of the meatus, so that it cannot be displaced by the patient. The canal is then occluded by a large pledget of sterilized cotton. As soon as this becomes saturated, it may be changed by an attendant, or even by the patient himself. The deep drain is removed twenty-four hours after operation. The canal will then be found to be perfectly free, and all portions of the middle ear can easily be seen upon speculum examination. It is seldom necessary to introduce the deep drain a second time, all hemorrhage usually having ceased at the end of twenty-four hours. I consider this procedure as one of great importance, both in suppurative and non-suppurative cases.

It is wise to change the dressing daily until the middle ear is perfectly dry. In many cases, however, this is impossible, and an interval of two or three days may be allowed to elapse between the dressings. The only possible accident which may occur is the infection of the middle ear through the canal. To avoid this, all instruments used in dressing the wound should be carefully sterilized. If the walls of the meatus are covered with a serosanguinous discharge, they should be thoroughly dried by means of cotton pledges, after which the canal is wiped out with a solution of bichlorid of mercury in alcohol, of a strength of 1 to 3000. A little boric-acid powder is then dusted over the walls of the meatus to maintain the parts in an aseptic condition, and to counteract the possibly injurious effects of heat and moisture following the occlusion of the canal. Ordinarily, the reaction following the operation disappears at the end of four or five days, the middle ear being perfectly dry and the mucous membrane presenting no evidences of hypæremia. The precautions alluded to in the early part of this paper are to be observed in order to avoid any possible danger of infection.

The results obtained in my own cases are given below:

*Chronic Non-suppurative Otitis Media.*—Removal of malleus, incus and drum-membrane, and mobilization of stapes: Cocain operations, 46: Greatly improved, 26; moderately improved, 14; unimproved, 6. Ether operations, 13: Greatly improved, 2; much improved, 5; moderately improved, 5; unimproved, 1. Total, 59 operations; improved, 52; unimproved, 7.

## CLINICAL MEMORANDUM.

### REPORT OF AN OPERATION FOR THE RELIEF OF COMPLETE PROCIDENTIA OF THE UTERUS AND BLADDER.<sup>1</sup>

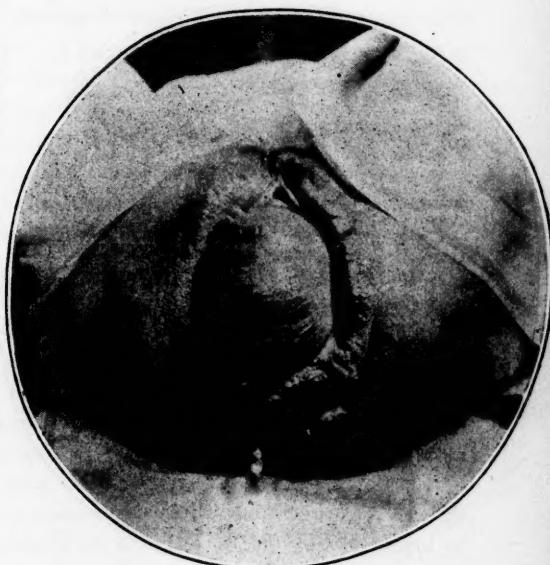
By H. O. WALKER, M.D.,  
OF DETROIT, MICH.

MRS. I. ST. C., aged thirty-two years, weight 90 pounds, was admitted to St. Mary's Hospital, Detroit, January 3, 1897, with the following history: Her father and one sister died of consumption; the remainder of the family are healthy. At the age of fifteen she was married, and a year later gave birth to a child, which died at the age of six months. Shortly after the death of the child she contracted syphilis, again became pregnant, and aborted at the end of the fifth month. In her eighteenth year she joined a circus, and did a great amount of horseback riding and trapeze performing, which line of work she followed

for two seasons, then being compelled to discontinue it on account of severe pelvic pains. There was marked dysmenorrhea and painful defecation, together with occasional attacks of diarrhea. For the past fourteen years she has followed the avocation of waitress and seamstress. She had acquired the opium habit, taking as much as half an ounce of the tincture during twelve hours for the relief of rectal tenesmus.

Physical examination revealed a complete prolapsus of the uterus and bladder, and an exaggerated rectocele. The labia majora were greatly enlarged and of a dense fibrous feel, the condition probably being that known as syphilitic elephantiasis. The labia minora were also considerably hypertrophied. There was an eversion of the rectum, and a fistula upon the right side extending into the rectum about two and one-half inches from the anus. At this point there was present also a rectal stricture which scarcely admitted an ordinary sized lead-pencil. The sur-

FIG. 1.



Complete Procidentia of Uterus and Bladder. Before operation.

rounding parts were greatly excoriated by the discharges from the rectum and fistula. Figure No. 1 gives a fair representation of the condition.

On January 13th, I operated in the following manner: First, I performed vaginal hysterectomy, which necessitated the greatest care to avoid wounding the bladder or rectum. No clamps were used, the arteries being tied with catgut as they presented. I then dissected up the thickened mucous membrane and removed it by elliptical incisions, commencing at the meatus above and keeping close to the labium on each side down to the upper border of the everted rectum. The cut edges were approximated with interrupted silkworm-gut sutures, leaving an opening two-thirds of the way down for such drainage of the peritoneal cavity as might be necessary. Forceful dilatation, with proctotomy of the rectal stricture, was then done,

<sup>1</sup> Abstract from a paper on "Abdominal Surgery with Specimens," read at a meeting of the Michigan State Medical Society, held at Grand Rapids, May 13, 1897.

and all the parts except the peritoneal cavity were liberally irrigated with 1-1000 bichlorid solution, then thoroughly dried with sterilized gauze, the rectum packed, and the usual dressing applied and held in position by a large sized T-bandage.

Owing to the frequent evacuation of the bowels and the necessity for catheterization, the frequent removal of the dressings and their reapplication was required. The drainage tube was removed on the third day. The future history of the case was uneventful, the temperature never going above 100° F., at any time. At this writing the patient is able to walk about and do light work, the only trouble being some rectal incontinence. Liberal administration of the iodids was resorted to at intervals during the progress of the after-treatment.

Two methods of surgical treatment presented themselves as being applicable to the relief of this poor woman's condition, namely, the one adopted, and the other an ab-

master and the tunica vaginalis, the sac is isolated as high up as possible, and is drawn outward through a small opening in the fascia of the external oblique muscle one-half an inch above Poupart's ligament and one-half to one inch externally to the region of the internal ring. If the sac is large, and on account of its funnel shape a recurrence is feared, a small opening is made into the peritoneal cavity to the outer side of the internal ring, and a curved clamp is passed through this opening and down to the lowest limit of the sac. When it is withdrawn, the sac is inverted like the finger of a glove and drawn outward through the incision, tied, and cut away. The incision is closed by a couple of stitches through muscle fascia. Of the 197 cases operated upon, primary union was obtained in 91.3 per cent. All but twenty of the patients were over fifteen years of age. Of 111 cases, which could be followed, there were four recurrences, that is, 3.6 per cent. No patient died from the operation.

*Vitality of the Uterine Mucous Membrane.*—JUNG (*Centralbl. für Gynek.*, May 8, 1897) had an excellent opportunity to observe the remarkable vitality of the mucous membrane of the uterus in the case of the wife of a man treated for gonorrhea and syphilis. She had had seven children and four miscarriages, and on account of profuse and repeated hemorrhages, her uterus was curetted and touched with carbolic acid. The good effects of this treatment had worn off in a month, and the cervical canal was dilated and the cavity of the uterus filled with a paste made of one part of chlorid of zinc and two parts of rye flour. The result apparently was a perfect one, the treatment reducing the size of the uterus, and obliterating the cervical canal. However, in three-months' time the patient was back again complaining of the same old trouble. The uterus was then removed, and examination of its nearly obliterated cavity showed a regeneration in part of its mucous membrane, the new epithelium showing the same pathologic changes as the old layer.

*Stone in the Bladder Broken Spontaneously.*—SEVEREANU (*Centralbl. für Chirurgie*, May 8, 1897) mentions a unique case in which a stone in the bladder was broken spontaneously. The patient was a man, aged eighteen, who suffered from his second until his ninth year from symptoms of stone in the bladder. From his ninth year until three months before his entrance into the hospital, he was perfectly well and could run and ride without the least pain. One night he fell into a grave and experienced immediate and severe pain in the lower part of the abdomen with a return of the old bladder symptoms. There was no blood in the urine.

By examination through the rectum, and by means of instruments, the bladder was found to contain at least two calculi which moved one upon the other. Suprapubic cystotomy was performed and the two halves of a calculus, which together weighed about an ounce, were removed. Each presented a broken surface which fitted exactly into that of the other half so that there was no doubt that a single stone had been broken into two parts by the fall, possibly, as a result of a powerful contraction of the bladder. The calculus was composed of urates.



Complete Procidentia of Uterus and Bladder. After operation.

dominal section and the fastening of the uterus to the abdominal wall. I questioned the feasibility of the latter method, owing to the numerous adhesions existing and the extensive hypertrophy of the parts. The method resorted to has certainly justified the effort. Figure No. 2, from a photograph taken about a month ago, represents her present condition.

## MEDICAL PROGRESS.

*The Results of Kocher's Operation for Hernia.*—In the *Centralbl. für Chirurgie*, May 15, 1897, KOCHER gives the results obtained by himself and his assistants in 197 operations for the radical cure of hernia. In the operation, as performed by him, the cord at its exit from the external ring is separated, and after division of the cre-

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SATURDAY, JULY 3, 1897.

## THE BILL BEFORE CONGRESS ABOLISHING ANIMAL EXPERIMENTATION IN THE DISTRICT OF COLUMBIA.

THIS is not the official title of Senate Bill No. 1063, but indicates the intent of its originators in framing it, as well as the practical effect of its execution. The bill, as originally worded and in its present form before Congress, has all the silky softness of a kitten's paw to the casual observer; but sharp and vigorous claws lie concealed within its insinuating fairness, which await only the legalization of its provisions to assert themselves in their destructive work. The measure is entitled "A Bill for the Further Prevention of Cruelty to Animals in the District of Columbia," and it is in this harmless guise that the Humane Society of Washington is endeavoring to usurp to itself the power of controlling all animal experimentation, not only in the Government laboratories, but also in those of the medical schools and of private individuals. The advocates of the bill are most specious in their arguments in favor of abolishing imaginary cruelties of a most horrifying character and preventing their occurrence by means of carefully issued licenses and a system of regular and

irregular inspection. The harmful character of the bill, as an entering wedge in the hands of visionary enthusiasts destined to prevent all animal experimentation, and so striking at the root of all progress in organic medicine, has been clearly pointed out by the scientific members of the medical profession resident in the city of Washington. This view of the measure has been confirmed by numberless memorials to Congress from all the prominent medical and scientific gatherings which have convened in this country for the last two years, and yet the measure is constantly gaining in strength and steadily approaching the goal of its final passage. It is one of the many illustrations of the fact that a small association of persistent individuals, especially if it contains within its number a few visionary women, can, by gaining the adherence of two or three strong advocates, carry almost any measure through any State Legislature or even through the National Congress, unless it is met and opposed by some scheme of what is known as practical politics. "Practical politics" means the control of a certain number of votes.

Up to the present time, the great brotherhood of medicine and allied sciences has rested upon the belief that its opinions carried weight with the politicians, because it believed the politicians had respect for the opinions of men who must know more upon the subject under discussion than anyone else. Medical societies have therefore contented themselves with simply embodying their opinion in the form of resolutions and presenting them to Congress. It is becoming daily more clear, however, from the progress of this matter, that he who counts upon a politician taking up a cause and throwing the weight of his influence and effort into the fight in its behalf, is certainly reckoning without his host. Sad though the conclusion may be, there no longer exists in our legislative halls a single champion of truth for truth's sake, or of justice for the sake of right. The sooner the medical profession acts in accordance with this understanding, the sooner will it be able to accomplish its end, in caring for the welfare of the community as well as its own safety and progress. Every question before Congress must be put upon the basis of practical politics. In the question at issue, the medical profession is practically unanimous in its opinion of the harmfulness of the pending measure. The only way to make that influence tell, is for

each and everyone of the one hundred thousand physicians in this country to write a letter to his representative and senator in Congress, notifying him that the medical profession takes issue with every representative or senator who does not oppose by his voice and vote this harmful bill. Certainly, there is no question before Congress designed to come home personally to each member of the profession in so harmful a way as this one. The touchstone of his support in the re-election of a member of Congress should be the attitude that member has exhibited toward this bill, and every candidate should be made to know and feel it.

This is a question in which no personal jealousies need enter. Now is the opportunity for the profession to stand shoulder to shoulder for once in a persistent and consistent fight until the desired end is won. Let the country and the world witness a united effort by the whole body of the medical profession to insist upon the right which they feel is theirs, and in the enjoyment of which rests the progress of medicine, and future struggles of this nature will be less arduous and less prolonged.

#### BALDNESS, TUBERCULOSIS, AND ARSENICAL INTOXICATION.

IN November, 1896, the attention of the readers of THE MEDICAL NEWS was directed to Sabouraud's studies of alopecia areata. In their course he was led to the investigation of other forms of loss of hair, and now in the *Annales de Dermatologie et de Syphiligraphie*, 1897, viii, 257, he gives us a most original and valuable paper on ordinary alopecia. He believes that the same microbe he found as the probable cause of alopecia areata is the cause of ordinary alopecia. This is an unexpected discovery, but he is so sure of his ground that he ventures to say the same microbe is the cause of loss of hair under all conditions, though he would doubtless except accidental causes. He is free to admit that there are still many unanswered questions in regard to loss of hair which the discovery of his microbe does not answer, but he thinks the answer will be forthcoming in due time.

The course of events in the production of cavities is as follows: There is an invasion of one or more hair-follicles by the microbe which develops its peculiar nest below the surface of the skin and above the

opening of the sebaceous gland into the hair-follicle. Its presence excites the sebaceous gland to a more active production of sebum, in consequence of which there are found upon the scalp the fatty plates so well recognized as seborrhea sicca. At the same time an inflammation takes place about the hair-follicle, the nutrition of the hair is interfered with, and after a time the hair is shed. The growing new hair may push out the microbial nest, and no permanent damage be done. Should a second infection of the follicle take place, permanent damage is apt to result, the follicle producing hairs of lesser and lesser diameter, until at last the papilla is destroyed. Follicle after follicle becoming diseased, we have the well-recognized bald patch. After years, the microbes in the follicles undergoing a steady increase in number, and the inflammation becoming chronic, atrophy of the scalp results, with a smooth, varnished bald head as a sequel. Unless the progress of events is checked by energetic treatment, permanent destruction of the hair is certain.

The author explains the different clinical pictures of alopecia areata and of alopecia vulgaris by assuming that in the former all the follicles of an area are affected, while in the latter only a follicle here and there is invaded. These investigations of Sabouraud deserve repetition by other observers, and without doubt will receive their deserts. While some of the phenomena of loss of hair are explained by his findings, it seems to me that some of his dicta are too sweeping. What with Sabouraud's findings and those of other observers, the preponderating influence of seborrhea or seborreal dermatitis in the production of baldness must be recognized in the near future. This being established as a fact, it must follow that the occurrence of dandruff will be taken out of the category of slight and trivial ailments that are to be left alone, and the importance of active antiparasitic treatment of all such cases will impress itself on doctors as well as laymen, greatly to the benefit of the growing generations.

The medical mind has of late become actively engaged with the question of tuberculosis. While all physicians are aware that the tubercle bacillus invades the lungs and gives rise to pulmonary tuberculosis, there are comparatively few who dream of the number of diseases of the skin which are due to the same cause. Hallopeau (*Annal. Derm. et Syph.*,

1896, vii, 1007) says that the reason there are so many varieties of tuberculosis of the skin is found: In the complex structure of the skin, the different elements of which react differently under the influence of tuberculous infection; in idiosyncrasy of patients, and in the differences of the infective agent, whether it is the bacillus or some form of toxin developed from it. He describes the following tuberculous affections: Tuberculosis verrucosa cutis, anatomic tubercle, tuberculous gumma, tuberculous tumors, tuberculous ulcers, tuberculosis suppurativa, lupus vulgaris and erythematous and lupus pernio. Besides these diseases, due more or less directly to tubercular infection, there are a number of dermatoses which occur in tuberculous subjects, such as lichen scrofulosorum, acne scrofulosorum, tuberculous erythemas, and a group of diseases recognized by the French under the title *folliculites suppuratives disseminées ou agminés*. In the limited space at my command, I can only draw attention to the subject, leaving the reader to consult for more detailed information the most recent treatises on dermatology.

The drug most extensively prescribed without discrimination by general practitioners in the treatment of skin diseases is arsenic. The more a man knows about dermatology, the less he uses arsenic. Like a host of drugs, it has at times disagreeable incidental effects. L. Nielsen, writing about arsenic (*Monatshefte f. prkt. Dermatol.*, 1897, xxiv, 137), says that arsenical pigmentation is one of the earliest and best known of the incidental effects, showing itself as brown spots, either occupying the sites of the lesions of the disease for which it was administered, or without any previous eruption. In the latter case it is often combined with other symptoms of intoxication and with keratosis. The pigmentation may occur both with acute and chronic poisoning. Idiosyncrasy exercises great influence in its production. It may appear after weeks, months, or years of more or less continued ingestion of the drug, the amount necessary to cause it varying greatly. Erythema often precedes its appearance. It may begin as very small round pigmented spots, or as coin-shaped, more or less sharply defined macules, and most often is widely diffused. The color may be dirty gray, but is usually some shade of brown. It is most pronounced about the neck and those regions physiologically most pigmented.

The affected parts are at the same time dry, rough, and scaly. The mucous membranes may be affected. It usually disappears a few weeks or months after stopping the drug, but it may continue indefinitely.

Keratosis comes on usually after prolonged use of the drug, and is more frequent in men than in women. It is symmetrical, and usually involves both the palms of the hands and soles of the feet. It may be diffused over the whole palm or sole and spread along the sides of the toes and fingers, though the middle of the palm and the concave part of the sole may be spared. Exceptionally it may affect the back of the hand or foot. Patches have occurred on the breast and abdomen, and between the shoulder-blades. Corns constitute the localized form of keratosis. They are multiple, numerous, small, diffused, or crowded together. They occur in the same locations as do the diffuse form. They are hard and warty-like, yellowish brown or darker. Keratosis may be combined with erythema, itching, hyperhidrosis, deformity of the nails, or symptoms of inflammation. Epitheliomata may develop either from the corns or the diffused keratosis.

GEORGE THOMAS JACKSON, M.D.

## ECHOES AND NEWS.

### *New Volume of Hare's System of Practical Therapeutics.*

—Messrs. Lea Brothers & Co. announce that a new volume of Hare's System of Practical Therapeutics will be issued shortly.

**Dr. Charcot's Statue.**—The statue of Dr. Charcot by the sculptor Falguière is nearly finished, and will soon be erected in the Salpêtrière Hospital, where Charcot made his experiments on hysteria and hypnotism.

**Obituary.**—Mr. J. Greig Smith, M.B.C.M., F.R.C.S., professor of surgery in University College, Bristol, England, died suddenly from pneumonia June 1st. Mr. Smith was known in America by his classic book upon abdominal surgery.

**The First International Exhibition of Dentistry and Dental Surgery.**—An international exhibition of dentistry, dental surgery and hygiene, under the auspices of a committee having among its number many competent experts, will be held in September at the Marlborough Hall, Polytechnic Institute, Regent Street, London.

**Yellow Fever at New York Quarantine.**—Isolated cases of yellow fever are constantly being discovered on ships from Central American ports. Ten cases have occurred during the past two months. The careful quarantine pre-

served in New York harbor has been successful in preventing any cases entering the country.

**Address in Medicine at Yale University.**—The annual address in medicine before the Medical Department of Yale University was delivered on June 29th at New Haven, Conn., by Dr. William M. Polk of New York. The subject of the address was "How to Work." In the evening a reception was tendered Dr. Polk by the faculty of the university at the residence of Professor William H. Carmalt.

**Ice Cream as a Cure for Hiccough.**—A serious case of hiccough in a boy, aged seventeen years, living in Westchester County, N. Y., has recently been reported. After resorting to various approved remedies without success for two weeks, the attending physician prescribed ice cream *ad libitum*. After two days of this treatment the hiccough ceased, and the patient gradually recovered from his emaciated condition.

**An Autopsy Club in Chicago.**—It is reported that a club has been formed in Chicago, the *sine qua non* of whose membership is that each member when he dies shall leave his brain to be thoroughly investigated by the active members of the organization. It has been suggested that the deep mystery that has hung over the mental operation of Chicago people promises to be swept away, in the course of time, by this system of investigation.

**Colorado's Contribution to the Rush Monument Fund.**—Colorado has already fulfilled the pledge for a \$2000 contribution to the Rush Monument Fund, made by Dr. Graham at the meeting of the American Medical Association at Philadelphia. At the meeting of the State Medical Society, June 15th, the full sum pledged by Dr. Graham was immediately raised by individual subscriptions, offered most generously and with great enthusiasm.

**A Memorial to Dr. Samuel Fisk Green.**—A hospital erected to the memory of Dr. Samuel Fisk Green, a brother of the Hon. Andrew H. Green of New York, has recently been opened on the island of Caradive, Ceylon. Dr. Green resided in Ceylon for twenty years, during which time he published a series of elaborately illustrated works, now the standard medical literature in the Tamil language. The opening of this hospital and the introduction of modern methods mark the beginning of a new epoch in the history of medicine of that country.

**Mississippi Valley Medical Association.**—The next meeting of the Mississippi Valley Medical Association will be held in Louisville on October 5, 6, 7, and 8, 1897. The president, Dr. Thomas Hunt Stucky, and the chairman of the Committee of Arrangements, Dr. H. Horace Grant, promise that the meeting will be the most successful in the history of the Association, and this promise is warranted by the well-known hospitality of Louisville and Kentucky doctors. Titles of papers should be sent to the secretary, Dr. H. W. Loeb, 3559 Olive street, St. Louis.

**Announcement.**—A letter from the Secretary-General of the Twelfth International Medical Congress to Dr. A.

Jacobi, the Chairman of the American National Committee, conveys the following information, which is additional to that which has been published in the medical journals: As it is too late to send tickets to the American congressists, they are requested to send to the Secretary-General at Moscow their addresses in London, Berlin, Vienna, or Paris, or to avail themselves of the National Committees in those cities, in order to receive their tickets and free passes over Russian railroads in those places. The free passes are valid from July 13th to September 13th over the following routes: Eydkunen to Moscow and back; Moscow to Petersburg, or Moscow to Graniza, or Moscow to Odessa; or *vice versa*, Graniza to Warsaw, or Moscow, and return by Moscow to Petersburg (or Odessa, or Eydkunen, or Ungheni, or Alexandrowo), or *vice versa*. Different lines going and returning may be chosen, and stop-over is permitted. Eydkunen to Pittsburgh is excluded from the free list.

**Bacteriologic Examinations of the New York City Board of Health.**—In order that the value of bacteriologic examination of the sputa may be at the service of physicians in all cases not under treatment in hospitals, the Health Department is prepared to make such bacteriologic examinations for diagnosis, if samples of the sputa, freshly discharged, are furnished in clean, wide-necked, stoppered bottles, accompanied by the name, age, sex, and address of the patient, duration of the disease, and the name and address of the attending physician. Bottles for collecting sputa, with blank forms to be filled in, can be obtained at any of the drug stores now used as stations for the distribution and collection of serum tubes for diphtheria cultures. After the sputum has been obtained, if the bottle, with the accompanying slip filled out, is left at any one of these stations, it will be collected by the Department, examined microscopically, and a report of the examination forwarded to the attending physician free of charge. The blank accompanying the sample should be fully filled out in every case.

**Health Reports.**—The following statistics concerning smallpox, yellow fever, cholera, and plague, have been received in the office of the supervising surgeon-general of the U. S. Marine Hospital Service, during the week ending June 26, 1897:

#### SMALLPOX, UNITED STATES.

	Cases.	Deaths.
Toledo, Ohio.....May 1-31	11	2
Memphis, Tenn.....May 1-31	7	..
".....June 12-19	5	..
Pensacola, Fla.....June 12-19	1 (varioloid)	..
New York.....June 12-19	..	3
Gloucester, Mass.....June 12-19	..	1
Cambridge, Mass.....June 12-19	..	1
Brooklyn, N. Y.....June 12-19	2	..

#### CHOLERA.

	Cases.	Deaths.
Bombay, India.....May 18-25	..	4
Calcutta, India.....May 8-15	..	69

#### YELLOW FEVER.

	Cases.	Deaths.
Rio de Janeiro, Brazil.....May 8-29	29	14
Havanna, Cuba.....June 10-17	251	40
Sagua la Grande, Cuba.....June 5-12	24	..
Cardenas, Cuba.....June 5-12	3	..

#### PLAQUE.

	Cases.	Deaths.
Bombay, India.....May 18-25	..	56

*The Recent Smallpox Outbreak in Chicago.*—One death from smallpox—that of a woman who had never been vaccinated—occurred in Chicago last month. Notwithstanding the fact that hundreds of persons were exposed to the disease during the highly contagious stage, only six contracted it. This would seem to illustrate the almost perfect vaccinal protection of the population of Chicago and the importance of maintaining the present system of continuous, unremitting vaccination. The work of Chief Medical Inspector Garrott and his corps of vaccinators should also be mentioned. Every person within a radius of several blocks of each infected house was immediately vaccinated or revaccinated; nearly 5,000 packing-house employees were similarly treated as a result of one case which occurred in the packing-house district, as well as the crews of trains running south into Texas and the Gulf States, the first case having been that of a cook on a dining-car which arrived in Chicago from the City of Mexico. Dr. Garrott employs the glycerinated vaccine lymph, not alone for prophylactic purposes, but because it has a modifying effect on the character of the disease if the latter develops. He has also adopted the practice of daily vaccinations until "it takes"—instead of every second or third day—and expects modifying effects even after seven-days' exposure. Fluid lymph was adopted by the department in August, 1895, after a systematic bacteriologic and clinical examination of all samples of vaccine then in use. It is an emulsion of vaccine lymph in glycerin, stored in sealed glass tubes, each tube containing material for one vaccination. Its use is followed by typical results with a diminution of the usual inflammatory vaccine vesicle, less constitutional disturbance, and freedom from suppurating sores, inflamed glands and lymph vessels.

## OBITUARY RESOLUTIONS.

### RESOLUTIONS BY THE FACULTY OF BELLEVUE HOSPITAL MEDICAL COLLEGE.

THE faculty of the Bellevue Hospital Medical College have the painful duty of directing a formal record in their minutes of the untimely and sudden death of their beloved colleague and president, the late Professor William Thomson Lusk, on June 12, 1897. Dr. Lusk was an alumnus of the College, the class of 1864, and class valedictorian. He became one of the instructors in the summer session in 1870. He was appointed professor of obstetrics in 1871 and president of the faculty in 1889. His great ability as a teacher and voluminous writer commanded the respect and admiration of the profession at home and abroad. His public services in the institutions under the charge of the Commissioners of Public Charities were rewarded by the appreciation and gratitude of all interested in medical charities. His devoted work in behalf of medical education connected his name most prominently with the teaching of medicine, and especially with the Bellevue Hospital Medical College. But above all, his fearless honesty of purpose and his exquisite gentleness of character and manner so endeared him to his associates in the College, that we, his loving colleagues

and friends, feel, in his death, a personal bereavement which words fail adequately to express. In common with his family, the profession, and his many devoted friends, we mourn his loss and deplore the premature end of a most useful and valuable life.

AUSTIN FLINT,  
Secretary.

### RESOLUTIONS BY THE MEDICAL BOARD OF ST. VINCENT'S HOSPITAL.

At a meeting of the Medical Board of St. Vincent's Hospital, held June 14, 1897, to take action on the death of Dr. William T. Lusk,

IT WAS RESOLVED to give expression of the deep sorrow of the members of the Board at the death of one who had labored so long and so well for the institution and for its inmates, and of a colleague who, by his courtesy and geniality, had won the high esteem of his associates.

IT WAS FURTHER RESOLVED to express to the family of the deceased the condolence of the members of the Board, and to forward a copy of this action to the medical journals.

## CORRESPONDENCE.

### THYROID EXTRACT IN THE TREATMENT OF FIBROID TUMORS OF THE UTERUS.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: I venture to ask the attention of the profession to the efficacy of thyroid extract in the treatment of fibroid tumors. I refer more particularly to fibroid tumors of the uterus. We are all familiar with the beneficial action of the remedy in the metrorrhagias of that condition (an action common, it appears, to hemorrhage due to similar states of the endometrium in other affections), but perhaps less so with the effects upon the growth itself. In this connection I hope soon to publish in your estimable journal a detailed report of several cases in which, to me, remarkable results have been obtained. In each case not only has growth been checked, but there has been a decided retrocession, accompanied by marked amelioration of local symptoms and improvement in general health.

I know of no remedy which meets all the indications in this disorder so markedly as thyroid extract. It should be given in much the same manner and with about the same limitations as in myxedema; its effect upon cardiac action and arterial tension being closely watched.

Respectfully yours,  
NEW YORK, June 23, 1897.  
W. M. POLK.

## OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

### THE PENNSYLVANIA EPILEPTIC HOSPITAL AND COLONY FARM—PHILADELPHIA COUNTY MEDICAL SOCIETY—PATHOLOGICAL SOCIETY OF PHILADELPHIA.

PHILADELPHIA, June 26, 1897.

IN view of the fact that Pennsylvania possesses no institution for the treatment of epileptics, of whom there are at least ten thousand within the borders of the State, the

growth of the project for the establishment of an epileptic hospital conducted on the village-community system by the Pennsylvania Epileptic Hospital and Colony Farm is being watched with no little interest by those concerned in the better treatment of this class of unfortunate patients.

The new institution, for the construction of which active steps have already been taken, is situated at Oakburne, a beautiful suburb within easy reach of this city, and here the corporators are establishing an institution which bids fair to become a model of its kind, and which will make possible the employment of the very best modes of treatment for a class of people which, under other circumstances, must needs be more or less proscribed and neglected. Patients will here be placed under the most favorable circumstances of a continuous outdoor life, congenial occupation will be furnished them, and they will be relieved from the consciousness that they are looked upon as pariahs of society—a most important thing to be considered in the betterment of their condition. The Oakburne institution will not limit its work in any local sense of the word, but, in event of its adequate recognition in State appropriations, proposes to receive patients from every county in the State, for many of whom at present the almshouse or the insane asylum is the only refuge. In the present universal and indiscriminate clamor for State funds for hospital maintenance everywhere, and the claims of "pressing need" by some hospitals which could, upon close investigation, present but flimsy excuses for their existence, it is to be sincerely hoped that the Pennsylvania Epileptic Hospital and Colony Farm will receive the aid it merits in carrying on a valuable and eminently charitable work.

At the last stated meeting of the Philadelphia County Medical Society, held on June 23d, Dr. A. G. Thomson reported a case of "Complete Blindness Due to an Acute Poisoning from Over-use of Jamaica Ginger; Recovery Followed by Toxic Amblyopia of Ordinary Chronic Form." The subject of the poisoning, after the ingestion of more than a quart of Jamaica ginger, taken in lieu of an alcoholic beverage, suddenly became completely blind, and remained in this condition for a period of seven days, when his sight became gradually restored, although evidences of a toxic amblyopia persisted. Dr. Thomson lucidly explained the pathology of the lesion, and illustrated his remarks by eye-ground charts of the case in question. In the discussion of the paper, Dr. G. E. de Schweinitz spoke at length of toxic amblyopias in general, and expressed his belief that in amblyopias due to the use of alcohol, the poorer the grade of stimulant, the worse the amblyopia produced; in reference to tobacco amblyopias, of which he particularly spoke, Dr. de Schweinitz questioned if auto-intoxication did not play an important rôle as a casual agent of the condition, inasmuch as in such cases he had noticed that the eye symptoms were preceded by signs of the intoxication elsewhere. The whole subject was further elaborated by the views of Dr. Edward Jackson, Dr. A. A. Eshner, and others who participated in the discussion.

Dr. A. A. Eshner read a very interesting paper on "Hysteria in Early Life," which included seven cases of

this condition coming under the observation of the speaker. His remarks pertained to the coexistence in children of hysteria and epilepsy, to the difficulties surrounding the diagnosis of such cases, many of which it was obviously impossible to definitely class as one or the other condition, and to the importance of the recognition by the profession of hysteria in early life. Much light was thrown on this uncommon disease by the contribution of Dr. Eshner and by the discussion of the paper by Drs. C. W. Burr and G. E. de Schweinitz.

Dr. Henry Beates, Jr., read a communication, entitled "Remarks on Some of the Causes Defeating the Proper Progress of Therapeutics." He took up for consideration the poor results accruing from the modern treatment of disease, and took occasion to point out some of the causes for these unsatisfactory evidences of therapeutic advance.

At the last stated meeting of the Pathological Society of Philadelphia, held on June 24th, Drs. Swan and Ohnesorg exhibited a specimen of aortic aneurism which arose from behind the origin of the innominate artery, and weighed 1080 grams; the heart was hypertrophied, and there was considerable erosion of the sternum from the pressure of the aneurism. Dr. W. G. Spiller showed a number of stained specimens of the nerve-cells of the brain, and gave an interesting *résumé* of their histologic peculiarities and the methods by which the motor and sensory cells may be distinguished. Dr. C. W. Burr exhibited a tumor of the brain which occurred in a case which was considered clinically as one of mastoid disease, with a profuse purulent discharge from the ear. An operation for the mastoid condition failed to give relief, and upon *post-mortem* examination a massive growth, probably a gumma, was found in the anterior portion of the left hemisphere. Dr. Burr drew particular attention to the existence of such growths in patients suffering from mastoid disease, and referred to a similar case coming under his observation some years ago, in which it was impossible to make an *ante-mortem* diagnosis of brain tumor.

Among the physicians of this city who have recently sailed for Europe may be mentioned Drs. J. William White and W. Easterly Ashton, who left on June 19th, and Drs. Judson Deland and Robert N. Kelly, both of whom sailed on June 26th to attend the International Medical Congress at Moscow. Dr. P. S. Donnellan intends sailing within the next week, and will spend the summer in the British Isles.

#### OUR VIENNA LETTER.

[From our Special Correspondent.]

THE VIENNA POLYCLINIC CELEBRATES ITS 25TH ANNIVERSARY—THE WIDAL REACTION AND ITS GENERAL ACCEPTANCE—SPECIFIC PRECIPITATES BY SERUMS IN FILTERED CULTURES OF TYPHOID AND CHOLERA BACILLI—THE ROLE OF AMEBÆ IN DYSENTERY—TWO INTERESTING CASES OF MAJOR HYSTERIA—INTEREST IN THE MOSCOW CONGRESS AND SOME RECENTLY ANNOUNCED ARRANGEMENTS.

VIENNA, June 5, 1897.

ON May 11th the Vienna Polyclinic celebrated the 25th anniversary of its foundation. Its development and

present status are of special interest, as it was, I believe, the first of the Polyclinics which arranged its courses for special teaching and is the model on which others have been founded. Many American medical students of twenty years ago or even less must remember it in its old quarters when a great many inconveniences and hindrances to satisfactory work were encountered, which the present magnificent hospital building and well-arranged, well-lighted clinic rooms have obviated. The appreciation of its advantages may be best judged from the number of its students, 869 having registered last year.

Two things seem of interest in the Polyclinic hospital report for 1896. The income in round numbers was 43,000 gulden (about \$17,500), and the expenditures 38,200 gulden (\$15,500). Surpluses in hospital finance are rare enough to deserve notice. With the expenditure of \$15,500 some 53,000 out-patients and 1200 inpatients were cared for. A much smaller outlay than would be required under corresponding circumstances in America.

It is very evident that the medical world at present is in an attitude of ready expectancy with regard to new discoveries or new applications of scientific principles which promise to be of diagnostic or therapeutic importance. The Röntgen-rays, though so recently discovered, have been very thoroughly exploited everywhere and hardly a country has failed to add its mite of some application of them in special circumstances of importance to medicine or surgery. Widal's agglutinative reaction in typhoid has been scarcely a year before the profession, and from all sides come important series of observations on its diagnostic value. All are agreed that it is a decided aid in diagnosis, though the impression generally conveyed is that it is not of such absolutely facile pathognomonic significance as was at first hoped. The conclusion seems to be gradually gaining ground that the reaction produced is not absolutely specific and that the effect is rather a quantitative than a qualitative one. Undiluted or only slightly diluted typhoid serum will produce an agglutinative reaction with certain other microbial cultures, notably of the bacillus coli communis. On the other hand, certain normal serums, when undiluted, produce an agglutinative reaction, even with typhoid cultures, which is extremely difficult if not impossible to distinguish from that produced by typhoid serum.

Some of the developments in the matter of agglutinative reactions with other serums promise interesting results. For instance, the German government plague commission in India reports that a very similar reaction takes place in cultures of the plague bacillus when the serum of persons who have had plague, or of animals which have been inoculated with the disease and have recovered, is mixed with the cultures.

Dr. Kraus, at a meeting of the Royal Imperial Medical Society of Vienna, on April 30th, gave a preliminary report of some observations made with filtered cultures of typhoid and cholera bacilli. With absolutely germ-free cultures certain changes which are specific for each serum and culture may be noticed. Typhoid serum will produce a precipitate in filtered typhoid cultures more or

less plentiful according to the concentration of the serum and the age of the culture, and the same occurs for cholera products. Similar appearances are not produced when any but the specific allied serum is added to the filtered culture.

The precipitate in each case seems to contain an alkali albumin and a peptone, and Kraus is of the opinion that they are the result of certain secretions of the bacteria precipitated by specific properties of the serums. He suggests that further study along these lines may help to elucidate the vexed question as to whether immunity is due to chemic properties in the serum, or to vital properties of the morphologic elements of the blood. The subject is of paramount importance for a proper understanding of immunity and of very practical usefulness in the study of immunization. It is just now a much mooted point between the French and German schools of bacteriology, and has called forth some very interesting work from great leaders of the two schools, Metchnikoff and Pfeiffer.

A recent communication from Professor Schrötter's clinic at the Vienna General Hospital throws more doubt on the subject of the specific etiologic action of amebæ in dysentery. These observations, the result of some experiments on cats, are contradictory of the preliminary report of a case of dysentery in which a special form of ameba was found in the stools and was considered to be the etiologic factor in the affection. Animals injected with the stools acquired dysenteric symptoms and the amebæ appeared in the stools. After the disappearance of the germ, however, the dysenteric stools continued, and the injection of some of this material into another animal set up similar symptoms. No amebæ could be found in the dejections of the second animal at any time, though they were characteristically dysenteric.

The autopsies showed similar lesions in both animals. Curiously enough, these were not confined to and were not even most marked in the large intestine. The mucous membrane in the neighborhood of the ileocecal valve in the small intestine and for some distance beyond it was the seat of the ulcerative lesions characteristic of the disease, while the large intestine was only slightly affected.

The reporter calls special attention to it in view of the highly lauded, much-used local treatment which is so common, and which would be of absolutely no avail with lesions situated as these were. He suggests the existence, at least in non-tropical forms, of dysentery where amebæ are found of some other etiologic element, probably a coincident bacterium, as the true cause of the disease.

Two interesting cases of major hysteria have been reported from Vienna hospitals recently. One of them serves to show what pranks the functional neuroses may play even with the refinements of modern scientific diagnostic methods. The patient, a female of twenty, developed gastric symptoms, the main features of which were pain after eating, localized in the stomach region, and the vomiting of blood. An examination of the stomach contents showed the presence of free hydrochloric

acid considerably in excess of normal, and a preliminary diagnosis of gastric ulcer was made. After a month of the usual treatment for the condition there was marked amelioration of symptoms, though the patient had lost in the meantime considerable weight. A second examination of the stomach contents made at this time showed the absence of free hydrochloric acid, a great diminution in the combined hydrochloric, and the presence of a notable amount of lactic acid. The diagnosis of carcinoma, however, was not made, as the age of the patient made it so improbable and certain suspicious neurotic symptoms had in the meantime been noted. Verily, the neuroses do not lose in interest as time goes on.

The second case was one of the rarer instance of bleeding without known cause from a number of peripheral capillaries. Besides hemorrhage from mucous membranes there occurred bleeding from the mammae (of which not more than half a dozen cases have been reported), and bleeding from various skin areas, especially from the webs of the fingers.

The recent announcements by the committee of arrangements for the International Medical Congress at Moscow of the opportunities which will be afforded visiting physicians to see various places of medical and scientific interest in the Empire has awakened new interest very generally in the Congress. The trip to the Caucasus and its health resorts, with side trips on the Black and Caspian seas, the journey to last fifteen days, may be taken for merely a nominal sum (about \$28). The distance is some 2000 miles through the heart of Russia, and the sleeping cars are to be always at the disposal of the travelers, so that there will be no additional expense for lodging. The railway rates in Russia itself for accredited visitors to the Congress have not yet been definitely announced. There is even more of red tape it seems in the matter of governmental railways than our own, but it is now known for certain that there will be notable reductions in the already extremely low fares.

#### TRANSACTIONS OF FOREIGN SOCIETIES.

*Paris.*

CAUSE OF ACUTE EDEMA OF THE LUNG—TREATMENT OF LOCOMOTOR ATAXIA BY ELONGATION OF THE SPINAL CORD—TWO CASES OF PERFORATION OF THE STOMACH—AN ANATOMIC STUDY OF THE REDRESSEMENT BRUSQUE OF CALOT—RECOVERY FROM GAN-GRENOUS PLEURISY—A TEST FOR THE PERMEABILITY OF THE KIDNEY—TREATMENT OF RHEUMATISM BY COMPRESSES SATURATED WITH SALICYLATE OF METHYL—A CASE OF ACUTE STREPTOCOCCIC MACROGLOSSIA.

AT the session of the Academy of Medicine held April 27th, HUCHARD discussed the subject of *acute edema of the lung*, the cause of which has never been thoroughly understood. In his opinion the sequence of pathologic processes is as follows: First, a peri-aortitis produces a disturbance of the innervation of the heart and lungs; second, there is a considerable increase of the vascular tension in the pulmonary circulation; third, there is a rapid insufficiency of the right ventricle.

In accordance with these causes the medicinal treatment should be to reduce the work of the heart. This is best accomplished by the withdrawal of ten or twelve ounces of blood from a vein and by wet or dry cups applied to the thoracic and hepatic regions. The cardiac collapse is best met by injections of caffein and camphorated oil. For the disturbance of innervation and the paretic state of the bronchi and diaphragm, hypodermic injections of strychnin and cauterization of the sternal region are advisable. Diuresis should be as free as possible. An exclusively milk diet and from twenty to forty grains of theobromin per day will accomplish this result.

A paper by CHIPAULT was read upon *the treatment of locomotor ataxia by elongation of the spinal cord*. This elongation is obtained not by suspension of the patient but by flexion of the vertebral column. Of forty-seven patients in the second stage of the disease treated by this method, twenty-two, or almost one-half, were relieved of all their symptoms, fifteen others were somewhat benefited, while the remaining ten received no benefit. The number of *séances* of flexion was in no case less than fifteen or twenty. They took place every two days and lasted from five to eight minutes.

At the session of March 4th DENTU reported *two cases of perforation of the stomach*, in one of which there were two openings and the patient died some hours after operation. In the other, operation was performed twenty-six hours after the perforation made itself manifest. There was a single perforation in the vicinity of the pylorus surrounded by fibrinous membranes, and as suture was impossible the site of perforation was tamponed and drained. The patient recovered. In both of these cases the cardinal signs of diagnosis, namely, excruciating pain in the pit of the stomach and disappearance of liver dulness, were both observed.

At the session of May 11, MENARD described the *results produced upon five cadavers presenting the deformity of Pott's disease by redressement brusque*, a method of treatment recently described by Calot. As a result of this forcible reduction of the deformity the bodies of vertebrae were separated a distance of one, two, or even three inches. The meninges and the cord did not appear to suffer in any way. In every case in which there was an anterior or lateral tuberculous abscess it was torn open and the tuberculous material brought into direct contact with the pleura or the meninges.

An anatomic study of cured cases of Pott's disease seems to indicate that at no period of the affection, not even in those cases in which a cure is obtained, is there new formation of osseous tissue. In a word, tuberculosis destroys the osseous tissue of the vertebral column but does not reproduce it. One is forced to the conclusion, therefore, that the interval between the bones, in patients subjected to Calot's treatment, are not filled in with an osseous callous and that the deformity is bound to recur.

COMBY and VOGT presented to the Medical Society of the Hospitals on April 30, a boy, aged eleven years, upon whom they had performed pleurotomy under discouraging circumstances. The illness began with an effusion in the left pleural cavity accompanied by unusually severe

symptoms of a typhoid character. On the third day pneumothorax developed. On the ninth day fetid pus, with a gangrenous odor, was obtained by aspiration. In the view of the almost fatal prognosis without intervention the pleural cavity was opened and irrigated with warm boracic-acid solution until the fluid returned perfectly clear. The pleura was gangrenous. The pleural cavity was irrigated daily with permanganate of potassium solution 1 to 2000. The case is interesting as showing the possibility of recovery after operation from a desperate condition. Examination of the pus showed that it contained the streptothrix funiculi, which was considered to be the cause not of the empyema but of its putridity.

ACHARD and CASTAIGNE described the significance of a test for determining the permeability of the kidney. Four grains of methyl blue dissolved in water are injected subcutaneously and the patient immediately passes water. Micturition is repeated at stated intervals, say every half hour, or hour. A simple inspection of the urine usually suffices to determine the presence of methyl blue, or the color may be collected by a few drops of chloroform added to the urine and shaken up with it in a test tube. The normal kidney gives a faint trace of blue in the urine in a half hour, and the reaction is very well marked inside of an hour. It reaches its maximum in from three to four hours, and disappears in from  $1\frac{1}{2}$  to two days. In patients whose kidneys are affected the appearance of the blue is delayed until after the first hour or perhaps later, or in some cases it does not appear at all. In twenty-two cases verified by autopsy this test has never failed, and in seventy-seven cases in which it was applied it failed in only four cases to agree with the clinical symptoms. This test seems likely to be of value in cases of Bright's disease without albuminuria, and also in cases of albuminuria without nephritis. It reveals the latent nephritis of tuberculous kidney, as was verified seven times at autopsy.

At the session of May 7th, LEMOINE stated that he had treated nine rheumatic patients with compresses saturated with salicylate of methyl and found that relief obtained was more rapid than that obtained by internal treatment with salicylate of soda. Essence of wintergreen, which contains ninety per cent. of the methyl salt, is poured upon a compress. This is placed upon the joint and covered with oiled silk or gutta-percha tissue, and held in place by a bandage. Two or three drams may be used in this manner without producing vertigo or any unpleasant symptoms.

SIDNEY found this treatment more efficacious than that of salicylate of soda taken internally in cases of subacute and chronic rheumatism. He employs the drug in much smaller quantities than Lemoine, putting only twenty-five or thirty drops upon the compress. One patient with gouty arthritis suffered from headaches and ringing in the ears after the application of a compress containing fifty drops.

MARIE reported that a diabetic patient excreting daily over an ounce of sugar was given methyl blue in doses varying from ten to twenty grains per day. In fifteen days the sugar had entirely disappeared from the urine.

At the session of the Biological Society held May 1st, LINOSSIER called attention to the fact that *pancreatic digestion is stopped by contact for a few seconds with abnormally acid gastric juice*. This result does not follow in all patients with hyperacidity, because the contents of the stomach as they pass into the intestine may be neutralized by the bile. It is most likely to occur in patients in whom hyperacidity is combined with hypersecretion. This explains the emaciated and cachectic appearance of these persons when contrasted with others in whom gastric digestion is absolutely wanting, but in whom intestinal digestion is undisturbed. The therapeutic suggestion is to prescribe alkalis toward the end of digestion, thus not only relieving the pains in the stomach, but also protecting the pancreatic digestion.

SABRAZES and BOUSQUET described a case of acute streptococcal macroglossia at the Society of Dermatology and Syphilis at the meeting held April 26th. The patient, a primipara, aged thirty-nine, a victim of tuberculosis and syphilis, aborted at the fifth month. She suffered from chills, fever, nausea, and albuminuria, and two days after the abortion the uterus was curetted. A bronchopneumonia and a subacute inflammation of the metacarpal phalangeal joint of the right index finger followed. One week after the abortion the tongue became greatly swollen, protruding from the mouth. There also was swelling of the throat, and dyspnea. The patient died of cardiac failure on the tenth day of her illness. The autopsy showed nodules of bronchopneumonia, a tricuspid endocarditis, a double serofibrinous pleurisy with effusion, large white kidneys, and a marked glossitis, especially of the anterior portion of the tongue, which was three times its normal volume. The inflammatory and degenerative alterations in its substance were produced by streptococci which existed there in great numbers.

#### Vienna.

#### A CASE OF UNUSUAL EXTENSIVE NEVUS PILOSIS—WHY RENAL CALCULI ARE SEEN WITH DIFFICULTY WITH THE X-RAY.

In the session of the Imperio-Royal Society of Physicians held April 30th, HERBA showed a case of unusually extensive nevus piloris, occupying the left side of the face, the front of the body, and a portion of the extremities of a six-year-old girl. The mother and the sisters of this child were unusually hairy, and the nevus in her was covered with hairs, especially in those portions of the body where hairs grow in men but not in women. The interesting feature in this case is that this nevus was not congenital, but at birth the parts where it now exists were raw and bled easily. Two weeks later, when they were completely covered with epithelium, there appeared here and there dark spots, and in three-months' time the nevus had reached the dimensions which it afterward maintained. The development of this nevus a short time after birth is perhaps to be compared with the fact attested by numerous observers that the children of certain races of negroes are born with a light skin, while others are already black at birth.

FRISCH attempted to find out why renal calculi, even

those which are large enough to be palpable, *are seen with difficulty with the X-ray*. He found that stones composed of urates, and also those composed of ammonio-magnesium phosphate, offer little obstruction to the rays and therefore appear pale. Oxalic calculi throw the deepest shadow, while amorphous phosphates show fairly well. It is sometimes possible to make out the different layers of the stone. Thus one which was composed externally of phosphates, and was smooth and round, was seen by means of the ray to contain a rough core of calcic oxalate.

## SOCIETY PROCEEDINGS.

### NEW YORK ACADEMY OF MEDICINE, SECTION ON OPHTHALMOLOGY AND OTOLGY.

*Stated Meeting, Held Monday, April 19, 1897.*

The President, DR. EMIL GRUENING, in the Chair.  
DR. HERMAN KNAPP presented a case of

#### LUPUS OF THE LACHRYMAL SAC AND CONJUNCTIVA OF BOTH EYES.

The patient was a colored girl about fifteen years of age, in whom the condition was well marked. The disease had begun in the nose and infected the eyes through the lachrymal canals. The skin eruption presented the typical picture of lupus. The treatment proposed was destruction of the diseased tissues by the galvanocautery.

DR. R. DENIG exhibited specimens illustrating

#### THE CHANGES OCCURRING IN COMMOTIO RETINÆ.

The speaker had observed in experimental work on rabbits the ophthalmoscopic picture of subchoroidal hemorrhage, and had found it quite different from that of the so-called *commotio retinae*. In the former a grayish-white discoloration, which has the appearance of being in the deeper layers of the retina, is observed, while in commotio retinae the discoloration is milky-white and seems to be upon the surface of the retina. The anatomic conditions, therefore, do not consist of subchoroidal hemorrhage and edema retinae, but present typical changes in the nerve-fiber layer of the retina as follows: Corresponding to the ophthalmoscopic picture, there are many small elevations in the nerve-fiber layer of the retina strung together like pearls, with depressions between. The elevations are covered by membrana limitans, and the latter is torn in pieces. The ganglionic cells are here displaced somewhat backward. The nerve-fiber layer between the elevations is slightly thickened. Under a powerful magnifying glass the elevations have the appearance of a mushroom room, with irregularly formed openings of various sizes.

The other layers of the retina are normal, and contain between the rods and cones some spheroid structures as exudations of the vessels of the choroid; the latter, immediately after the blow, being contracted for about thirty seconds, become paralyzed and dilated with simultaneous hyperemia of the optic disc. This condition could be very well observed in albinotic rabbits. Subchoroidal hemorrhages are caused only by very severe blows, and do not appear by lesser violence. If one may draw parallel

inferences from the rabbit's eye and that of the human being, it can easily be understood why in some instances of commotio retinae there exists, in spite of a normal fundus, a diminution of the peripheral and central vision in the form of scoloma or decrease of sight.

These changes are explained as follows: On receiving the blow the vitreous is forced against the retina like a wave, rebounding with the same violence against the starting point. Through the violence of this wave the stigmata of Muller's fibers are distended, at some spots the limitans is torn apart, and the vitreous fluid is pressed into the nerve-fiber layer of the retina. The latter becomes disentangled, giving rise to the above microscopic picture and, if large enough, producing the ophthalmoscopic picture of milky discoloration of the retina. The vitreous liquid, pressed inward, becomes gradually absorbed, the disentangled nerve-fibers join together, and all structures return to the normal. The fact that no harm is done to the nerve-fibers may be explained by the well-known resistance of the axis cylinders, for instance, in multiple sclerosis.

A paper, entitled

#### TRAUMATIC PROLAPSE OF THE IRIS AND ITS TREATMENT,

was read by DR. G. A. DE SCHWEINITZ of Philadelphia. (See page 8.)

#### DISCUSSION.

DR. CHARLES J. KIPP of Newark, N. J., agreed in the main with the author. He was in the habit of abscising practically every prolapsed iris seen within a few days after the injury, and some that have been prolapsed for a longer period. When the rupture is situated near the sclerocorneal junction, he sometimes introduces a stitch to hold the wound together, and has never seen unpleasant results follow this procedure.

DR. T. R. POOLEY thought the position taken by the author, while admirable in some respects, was nevertheless open to criticism. Surgery of the eye does not differ from surgery elsewhere, and one of the first and fundamental rules of surgery, where a wound is concerned, is to protect it from any foreign body and to bring the edges of that wound together, and maintain them there. To do this, it may or may not be necessary to introduce sutures. They are seldom required in wounds of the eye, but the first and most important thing is to remove the foreign body. The iris here is a foreign body, and the proper treatment is abscission in all cases, except where there is an infectious disease of the eye, otherwise the iris will heal in the scar and the eye be subjected to traction and recurring attacks of iritis, and, possibly, glaucoma. Abscission is easily done when the wound is recent, but becomes a somewhat difficult matter if the condition has lasted some time. The author had stated that wounds of the conjunctiva are not apt to become infected, and in a recent paper Dr. Knapp said he rarely, or never, saw sympathetic ophthalmia follow prolapse of the iris, unless the latter was wounded by the injury or by the surgeon. The speaker's experience showed that conjunctival wounds are very liable to infection.

DR. P. A. CALLAN said that, as he grew older, he became more conservative. Whenever he saw a recent case of prolapse of the iris he put the patient to bed, applied ice-cold compresses and a firm bandage, employed mydriatics and waited three or four days to see what the result would be. If at the end of this time nothing was gained, he abscised the iris. He had seen brilliant results follow this treatment. He did not, however, believe in the expectant treatment when carried so far as to keep a patient in bed fifty-four days, as was done in Dr. Knapp's case.

DR. J. E. WEEKS said the stand he took was not quite so radical as that of Dr. Pooley, nor quite so conservative as that of Dr. de Schweinitz and Dr. Knapp. He thought the condition referred to by the author was incarceration, rather than prolapse of the iris. When this occurs there is present beneath the lids an elevation which is constantly being rubbed against by movements of the eye and eyelids, and there necessarily results more or less irritation. Prolapse of the iris may also be the means of carrying the secretion of an infectious disease of the lachrymal sac to the interior of the eye. It was his practice to abscise when the case is seen in the early stage and also in later stages whenever it is possible, provided a firm cicatrix has not formed. The plastic exudate which covers the iris after rupture of the cornea can easily be removed and the wound made perfectly clean. Healing can be obtained by reposition of what remains of the iris; if this is not possible, the iris should be excised. Little or no danger of infecting the eye is incurred. The results of conservative treatment are not good and the process of repair is much prolonged, whereas rapid recovery and no damage to the eyeball follow more energetic treatment.

DR. DAVID WEBSTER said he had not seen many cases of traumatic prolapse of the iris, except as a result of cataract operation. In such cases he followed one of the three plans mapped out by the author, *i.e.*, abscission of the prolapsed iris, reposition, or conservative treatment. He had often replaced a prolapsed iris, but had never been able to maintain it in position. At one time he had treated these cases by cauterization, but had abandoned the treatment. With regard to incarceration of the iris, he thought the treatment should be conservative.

DR. W. F. MITTENDORF was of the opinion that immediate abscission is the proper treatment of this condition, and at times he had performed the operation late at night.

DR. HERMAN KNAPP was in favor of non-operative treatment. In some cases he would abscise a prolapsed iris if he could make a clean iridectomy. He had been led to follow the conservative plan of treatment by the good results obtained twenty years ago in cases of prolapse of the iris when nothing was done for them. He never operated in those cases where the iris was not lacerated, nor the deeper parts injured, and where there was a chance of a linear scar resulting. What Dr. Pooley had said in regard to a prolapsed iris being a foreign body is true, but in this condition the iris protects the deeper parts of the eye by plugging up the external opening and thus preventing the entrance of germs. Regarding the reduction of a prolapsed iris, he thought this a very un-

certain method and no longer attempted it. Prolapse of the ciliary border of the eye after cataract operation is a most unfortunate complication, as it produces much swelling and a very unpleasant form of astigmatism.

The CHAIRMAN said that, as many wounds of the cornea which permit of prolapse of the iris are made with a pointed instrument, it is very difficult to abscise the iris properly through such a small wound, especially when the case is seen some time after the injury. Under such circumstances the wound should be enlarged.

DR. DE SCHWEINITZ, in closing, said he feared he had not made himself clear, for he was not so conservative in his views as Dr. Pooley seemed to think. He made it a rule to abscise in all cases, except in those where the wound reached across the entire cornea. In such cases the iris acts as a bar to the entrance of germs into the eye, and these he treated expectantly. Dr. Knapp had covered the ground when he said we should excise whenever a clean iridectomy could be done.

#### GERMAN SURGICAL SOCIETY.

Meeting Held at Langenbeck Haus, Berlin, April 21 to  
24, 1897.

[From our Special Correspondent.]

The President, PROFESSOR BRUNS of Tübingen, in the Chair.

#### SURGICAL TREATMENT OF GASTRIC ULCER.

PROFESSOR V. LUBE of Würzburg reported that he had treated 1000 cases of gastric ulcer medicinally during the past ten years, the treatment consisting of rest in bed, hot applications, the administration of Carlsbad water, and a carefully regulated diet. Seventy-four per cent. of the patients were cured, 21 per cent. were improved, 16 per cent. were not improved, 4 per cent. lost sight of before the course of treatment was completed, and 2.4 per cent. died. He laid down the indications for surgical interference as follows: (1) Profuse, repeated bleeding, (2) severe and continued pain and vomiting, (3) perigastritis, with adhesions and abscess, (4) perforation.

PROFESSOR MICULICZ of Breslau read a paper on METHODS OF OPERATING IN GASTRIC ULCER, AND INDICATIONS FOR OPERATION.

He said that 238 cases of operation for gastric ulcer had been reported, with a mortality of ten per cent. He has operated on thirty-six patients presenting this lesion. He expressed it as his opinion that resection is the most dangerous operation, and that in all cases but those having cancer, or ulcer of the anterior wall, a pyloroplasty operation is to be preferred. In instances of perforation, operative measures should be instituted at the earliest possible moment, as delay increases the danger of peritoneal infection. The infiltration method of anesthesia under these circumstances is often preferable to the use of ether or chloroform. It is frequently necessary to make use of the actual cautery in order to arrest the hemorrhage. He approved of the indications for operation as presented by v. Leube, and reported a series of cases in which patients

had remained perfectly well from seven to ten years subsequent to operation.

**THE SURGICAL TREATMENT OF DIFFUSE PERITONITIS** was the subject of a paper by DR. KROTE of Berlin. He said that the objects to be attained by operation are to prevent further infection and to relieve intraperitoneal pressure by removing the exudate, thus allowing of peristalsis, free circulation, and easy respiration. He recommended early operation, flushing of the cavity with sterile water, packing with gauze, and drainage. Sixty-eight cases were reported, with twenty-two recoveries.

DR. MARWEDEL of Heidelberg reported

**A CLINICAL EXPERIENCE WITH THE USE OF THE MURPHY BUTTON.**

He said that since the last medical congress fifty-five patients have been operated upon, and the Murphy button used, in Czerny's clinic. In thirty-five cases the anastomosis was between the stomach and intestine, in three it was between the gall-bladder and intestine, and in the remainder it was intestinal. Twenty-nine of the patients had a carcinomatous stenosis. Favorable result in several instances was attributed to the short time occupied in performing the operation.

The average time at which the button was passed was twelve days, the earliest being eight days and the latest forty-five. Of 328 cases thus far reported, stricture of the intestine has occurred in but three. The speaker drew attention to the inferior quality of the Murphy buttons frequently offered for sale, and insisted upon the necessity of selecting a reliable one when about to perform an anastomosis.

DR. KUMMEL of Hamburg read a paper on

**THE SIGNIFICANCE OF THE ROENTGEN RAY IN SURGERY.**

In addition to the ordinary uses of the ray in locating the presence of foreign metallic bodies in the body, the author had employed it in the diagnosis of stone in the bladder and kidney, of gall-stones, in fractures and dislocations, and in syphilitic, tuberculous, and osteomyelitic changes in bone, etc. He illustrated the points of his paper by showing more than one hundred finely executed plates.

During the discussion, DR. HOFFA of Würzburg spoke at some length, and showed numerous plates illustrating the use of the ray in the recognition and correction of deformities.

**THE OPERATIVE TREATMENT OF HIGH STRICTURE OF THE RECTUM**

was the title of a paper read by PROFESSOR SONNENBURG of Berlin. In syphilitic and gonorrhreal stricture, his method of procedure is to resect the coccyx and a portion of the sacrum, lay open the stricture, and tampon the wound for several months. His first patient operated upon in this way six years ago has remained in good condition since. In cases of cancer located high in the rectum and in the sigmoid flexure, he first frees the growth from its attachments through an abdominal incision. The patient is then placed on his side and the rectum is freed

from below. The sphincter ani is then incised, the gut drawn down and out and divided above the lesion, and the end sewed to the sphincter. In the case of one patient, he removed twenty-two centimeters (seven inches) of intestine in this way. Healing was slow, but the man is now well, fourteen months after the operation.

**DR. REHN of Frankfort-on-Main then read a paper on PENETRATING HEART WOUNDS AND HEART SUTURE.**

These wounds, the author said, are seldom met with, and, in consequence, experience in their treatment is slight. Large wounds invariably result in death; small wounds present a possibility of saving life by suitable treatment. It has been demonstrated by *post-mortem* examinations that even complicated wounds may heal.

At the author's request, a series of experiments had been carried out by Dr. Bode of Professor Landois' Physiological Institute, and the fact had been determined that a light touch on the heart of a live rabbit has no effect on the activity of the organ, strong pressure causes arrhythmia, and a puncture causes a short arrest, which is followed by rapid and uneven action. Small wounds have but little tendency to gape, while large wounds, no matter what the direction of the incision, gape widely. Hemorrhage is most severe from auricular wounds, and greater from the right than the left ventricle. Small wounds soon cease to bleed.

The clinical picture in these experiments showed bleeding of variable degree, a rapid, feeble pulse, cyanosis, and marked prostration.

The treatment in cases of slight wounds should be of an expectant order, the patient being kept absolutely quiet. Rehn does not recognize any necessity for venesection, the plan that has been advocated by some. In case operation is decided upon, the left ventricle is accessible after the third and fourth left costal cartilages and a portion of the ribs have been resected. To operate on the auricles, the sternum must be resected.

As an illustration of his method, the author presented a man, aged twenty-two, who had received a stab wound in the fourth left intercostal space on September 7, 1896. Upon admission to the hospital it was found that he was almost pulseless, cyanotic, and that the area of the heart's dulness was increased to the right. The following day he was somewhat better, but the area of dulness had still further increased.

On September 9th the man was much worse, the pulse being small and thread-like, the respirations 76 to the minute, and the heart area of dulness more pronounced. He appeared to be at the point of death. The pleura was incised in the fourth intercostal space, and the fifth costal cartilage and a portion of the rib was excised. The pericardium was laid open, when a wound  $1\frac{1}{2}$  cm. long was found in the wall of the right ventricle. There was no loss of blood during systole. Three silk sutures were inserted in the edges of the wound, the clotted blood was washed out from the pericardial sac, and this cavity and the pleura were doused with normal saline solution. The cavities were then packed with iodoform gauze. The patient's pulse and respiration immediately improved, and

he went on to complete recovery, which, however, was complicated by the occurrence of suppurative pleuritis.

DR. BARDEHAUER of Köln reported a case of gunshot wound in which injury of the diaphragm was suspected. The pleura was opened, but no injury was found. The patient died after fourteen days, and at autopsy the bullet was found in the right auricle.

## REVIEWS.

**THE SURGERY OF THE CHEST.** By STEPHEN PAGET, M.A., Oxon., F.R.C.S., Surgeon to the West London Hospital and to the Metropolitan Hospital. Illustrated. New York: E. B. Treat, 1897.

IT is an uncommon pleasure to read a surgical monograph so well conceived, so well written and so exhaustive as the one under consideration. The author, aside from his own extensive experience in injuries and diseases of the chest, has carefully covered the range of literature bearing on the subject and has carried out the promise made in his preface "to make a collection of such facts and experiences as lie outside the usual course of our work." The fact that this book is the first on the subject to appear in the English language only enhances its present value.

Mr. Paget divides his subject into two parts, the first including injuries, the second diseases of the chest. Passing over the excellent chapter on surgical landmarks and deformities and those on fractures and dislocations, we note that the author commends simple puncture, not aspiration, in cases of pneumothorax due to disease or injury, if the symptoms do not abate under rest and opium. He admits, however, that in certain cases it may be necessary to make a free incision with or without resection of a rib. The prognosis in traumatic hernia of the lung, he regards as good if the lung has not been too long strangulated or is not already infected, and reduction of the hernia seems in most cases to have yielded the most satisfactory results. In cases of hemothorax, rest, next free resection, are advised, although in the latter event preparation for transfusion must be made previously.

The treatment of shock: immobilization of the chest and gauze drainage constitute Paget's advice for wounds of the lung of a penetrating character; but continued hemorrhage demands free exposure with plugging, suturing, or ligaturing of the pulmonary wound. The rare cardiac wounds require rest, possibly resection and opening of the pericardium in case of too great pressure of blood within it. Incision is reserved for urgent cases of primary serous pleural effusion, while aspiration is recommended for the usual cases. Nor does Paget agree in this respect with other authorities, notably in this country, who prefer immediate aspiration to the operation at the end of two or three weeks.

It is in the chapter on "Empyema" that the majority of readers of the book will be most interested, since empyema is the disease most frequently encountered in the chest demanding surgical treatment unless we regard the aspiration of a simple pleural effusion as a surgical oper-

ation. Although there is, in this chapter, not much that is strikingly new, the subject-matter is well arranged and the conclusions will be accepted as those most universally agreed upon. For example, "incision without resection is, at present, out of favor," and "the effusion must not be let out too rapidly" are statements that will meet general approbation. Again, the author condemns irrigation after empyema operations in which, we are sure, he has the sanction of most observant surgeons. In those instances in which the drainage tube becomes lost in the pleural cavity, a not infrequent accident when the tube is not properly secured, a free resection is urged rather than the usually useless tentative measures to recover it.

In speaking of bronchiectasis and its surgical treatment, the author bids the surgeon to be hopeful, giving the encouragement of a long record of successful cases. Each case, he tells us, must be studied on its merits and a different method of procedure followed in each. It was in 1877 that Rousseau laid down the dictum that an abscess of the lung was altogether beyond the reach of surgery and yet a large number of successful cases have been published since that time and similar good results have been chronicled in cases of gangrene of the lung. In "tubercular phthisis," Paget thinks only two conditions are amenable to surgical interference: fetid pyopneumothorax and large tuberculous cavities with septic absorption. Certainly, with the recollection fresh in mind of the romantic suicide of the young Italian surgeon after a fatal attempt to remove the tuberculous apices of his betrothed, surgeons will be skeptical of operation in simple tuberculous infiltration of the apex of the lung.

It is advisable, says the author, to attempt to save a patient's life by operation, when there is obstruction of the air-passages by foreign bodies which are otherwise not removable. Aspiration of the right ventricle may be attempted when this organ is over-distended because of injury. Conservative surgery is advocated in neoplasms of the lung. The chapter on subphrenic abscess is complete and embraces the results of Maydl's extensive studies. In the appendix are given M. Réclus's address at the French Surgical Congress of 1895 and Bulan's treatment of empyema by continuous syphon-drainage.

In this somewhat summary review we have established, we hope, the trustworthiness of the book. The extensive pathology, the judicious selection of casuistic examples, the terse and accurate statements as to the possibilities and limitations of the surgery of the chest, together make up a unique and valuable addition to medical literature. The book is well-printed on good paper and is handsomely illustrated. We have no doubt that we shall see its few imperfections removed in a second edition.

### VORLESUNGEN ÜBER ALLGEMEINE PATHOLOGIE.

Von DR. M. LÖWIT, o.ö., Professor der allgemeinen und experim. Pathologie aus der k.k. Universität Innsbruck. Erstes Heft: *Die Lehre vom Fieber*. Jena: Gustav Fischer, 1897.

THIS book is a most valuable addition to our knowledge of the various manifestations of fever, and it is one of the most important contributions to general pathology that

has been written for many years. The subject in hand is treated in a most exhaustive manner, quite in keeping with the usual style of the better German writers, and whereas it does not serve as a text-book, still as a work of reference it must be highly commended.

Since bacteriology has been proven to play so important a rôle in pathology, it is not surprising to note that several of the chapters deal with the many and varied effects produced by bacteria on living cells, and their importance in the etiology of fever. That pyrotoxin does not always arise from the bacterial cell-body, but that it is often produced by the metabolism between the organism and the tissues (Brieger) is shown. Some pathogenic bacteria may cause disease and no fever, as in many cases of cholera and tetanus, while some non-pathogenic forms may cause fever alone and no disease.

The various changes occurring in the blood in fever are minutely described and take up a great part of the text. The blood changes are among the most important manifestations of fever, but many problems are wholly unsolved. For instance, the author does not agree with Ughetti, who states that fever does not occur without important and recognizable destructive changes in the blood, and cites for example that ten to twenty-four hours after rabbits are inoculated with anthrax and while their temperature may be from  $104^{\circ}$  to  $106^{\circ}$  F. no morphologic or numeric changes can be discovered in the blood.

The book is fully up to date, well stocked with references and well worthy of close study. It is dedicated to Cohnheim's memory.

**SYRINGOMYELIA.** Alvarenga Prize Essay for the Year 1895. By GUY HINSDALE, M.D. Philadelphia: P. Blakiston & Co.

**A NEW CLASSIFICATION OF THE MOTOR ANOMALIES OF THE EYE.** Based upon Physiologic Principles, Together with Their Symptoms, Diagnosis, and Treatment. The Prize Essay of the Alumni Association of the College of Physicians and Surgeons, New York, 1896. By ALEXANDER DUANE, M.D. New York: J. H. Vail & Co.

BOTH of these essays have appeared in medical journals, the former in the *International Medical Magazine*, the latter in the *Annals of Ophthalmology and Otology*, and are now reproduced in book form. The former is comprised in 60 pages of text, the latter in 100.

Dr. Hinsdale's contribution is the outcome of a literary task, a review of the literature of syringomyelia, which has, despite the fact that the disease has been generally recognized only during the past decade, already taken on considerable proportions. The only contribution that he makes to the subject is the notes of two cases, duplicates of which can probably be found in almost any large hospital for chronic diseases in the country.

Compared with the opinion on the same subject of Hoffman, of Schlesinger, and of Dimitroff, the brochure before us suffers. It is by no means a complete reflection of the knowledge of the pathogenesis and symptomatology of the disease as to-day established. Careful reading compels the statement that the contributions in the literature

have not been thoroughly digested, nor is the subject matter laid open in the way one has a right to expect in a prize essay.

Dr. Duane's work is deserving of unstinted praise. Carefully planned, well-laid out, with a plain statement of the nature of the problem which he endeavors to solve, the writer attacks the subject in a manner that commands attention from the start and holds it through the many intricacies to the end. When he reaches his conclusion the careful reader is of the author's opinion. From the point of view of literary style alone the essay calls for favorable comment. The subject of motor anomalies of the eye has been so much discussed by certain enthusiasts and faddists during the past few years that an authoritative and scientific essay, such as the contribution of Dr. Duane, is a welcome one.

We would call attention to the erratum on p. 66, sixteenth line from bottom. The word tenotomy obviously should read advancement.

**ARTIFICIAL ANESTHESIA. A Manual of Anesthetic Agents and Their Employment in the Treatment of Disease.** By LAURENCE TURNBULL, M.D., Ph.G., Aural Surgeon to the Jefferson Medical College Hospital, Philadelphia. Fourth edition. Philadelphia: P. Blakiston, Son & Co., 1896.

In the seven years which have elapsed since the publication of the third edition of Dr. Turnbull's book, many additions have been made to the anesthetic armamentarium, particularly in the field of local anesthesia. These discoveries and the publication of many valuable treatises and articles upon the general subject of anesthesia and upon cognate themes, have rendered this new edition necessary.

The author reaffirms his opinion that ether is the safest general narcotic, but goes too far, we think, when he assigns evil results from its administration to the operator rather than to the agent. Lobular and lobar pneumonias following the skilful use of ether are by no means unknown. We agree with Dr. Turnbull that ether is safer than chloroform as an anesthetic for general use; but in this field above all others, a judicious selection of cases is a powerful factor in obtaining favorable sequels.

We heartily endorse the author's caution that "no one should be allowed to administer any anesthetic without a certain amount of tuition, and no one should receive a diploma until he has shown a knowledge of the chemical composition and physiological action of such anesthetics." It is strange that hospital boards should continue to show indifference to this subject.

All the systemic anesthetics and those with local action are fully considered, with modifications and combinations as they have been suggested by various writers. Indeed, there is no theme connected with anesthesia, general or local, which is not completely discussed.

We wish we could say as much for the literary style of the book as for its contents. The subheadings in the various chapters are in poor taste and give the page a chopped appearance. The diction is not in all parts as clear as it should be. The press-work is good and so are most of the illustrations.